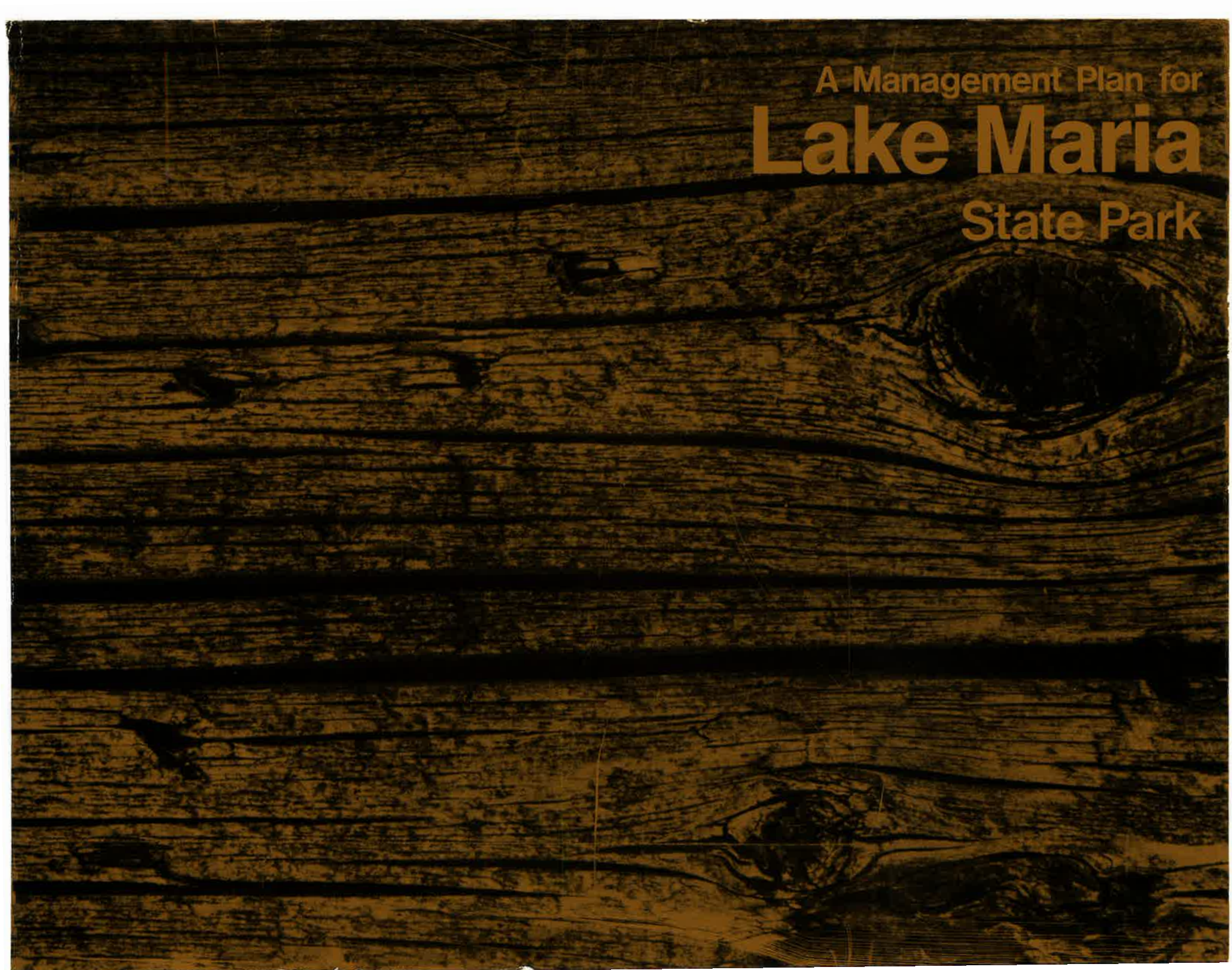

A Management Plan for Lake Maria State Park

A Management Plan for

Lake Maria State Park

Minnesota Department of Natural Resources

Approved September 1978
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Credits

This plan was prepared for the citizens of the state of Minnesota under the aegis of the Outdoor Recreation Act of 1975 by a multi-disciplinary team of Department of Natural Resources employees.

Thomas J. Polasik, Recreation Resource Project Leader
Harry R. Roberts, Recreation Resource Project Assistant
Allen Henderson, Park Manager, Lake Maria State Park
Gary Swanson, District Forester
Timothy Bremicker, Area Wildlife Manager
Jervin "Butch" Gilbertson, Area Fisheries Manager

Technical Support:

Wayland Porter, Recreation Coordinator
John Winter, Park Specialist
Otto Christensen, Park Planning Supervisor
Merle DeBoer, Operations Specialist
Clinton Besonen, Regional Park Supervisor
Michael Eliseuson, Regional Naturalist
Larry Buchholz/Timothy Browning, Regional Trails Coordinator
Thomas Downing, Park Naturalist
Michael Stratton, Park Laborer
Betsy Rauenhorst, Landscape Architect, Bureau of Engineering
David Meineke, DNR Division of Minerals

Editorial and Graphics Staff:

Linda J. Magozzi, Editor/Photographer
Jeff Harmes, Assistant Editor, Para-professional
Norm Holmberg, Graphic Designer
Greg Rosenow, Graphic Specialist
Gail Tracy, Word Processor Technician
Lori Anthonsen, Word Processor Technician
Nancy Wright, Secretary
Joan Bieniek, Secretary
James Dosedel, Para-professional
Wendy Stone, Para-professional
Pat Ivory, Para-professional
Mary Kaye Robinette, Para-professional
Greg Decker, Para-professional

The following members of the Lake Maria State Park Planning Advisory Committee actively participated in the planning process:

Robert Dunn, State Senator
David Fricke, Wright County Planner
William Gillhan, Silver Creek Township Supervisor
Thomas Johnson, Wright County Parks Superintendent
Willard Kreitlow, Wright County Park Board
Paul McAlpine, Wright County Commissioner
Robert McEarchern, State Representative
Donald Repke, Wright County Park Board
Marcus Zumbrunnen

Other Individuals, Groups, and Agencies:

Robert Gambrel
Robert Rierson
Knickers and Kickers
Minnesota Historical Society
Minnesota Department of Transportation
State Planning Agency
U.S.D.A. Soil Conservation Service

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All cost estimates in this plan are based on 1976 dollars.

Purpose of Plan

MANAGEMENT AND DEVELOPMENT PHILOSOPHY

Minnesota is blessed with an abundance of high quality resources and, even more importantly, with leaders who have the wisdom and foresight to protect these resources. As a result, Minnesota today has one of the finest state recreation systems in the country. The Department of Natural Resources, with the assistance of concerned lawmakers, conservation and recreation groups, and private citizens, intends to do its utmost to provide planning that will be responsive to the needs of this generation while protecting the birthright of the next.

The management and development philosophy for the Minnesota state park system consists of two major objectives. The first is the protection of the natural resources within the recreation system. Without this protection, a resource can be destroyed in an alarmingly short period of time. Thus, protection benefits not only future generations, but present-day users as well. The second objective is maximizing the recreation opportunities available to the user, both in terms of quality and variety. It is the DNR's position that every citizen should share in the beauty and recreational opportunities of Minnesota's natural resources as well as the responsibility for maintaining and preserving them.

Obviously, there are going to be situations where use and preservation conflict. Every attempt will be made to reconcile these conflicts by the use of responsible management and development techniques. When this is not possible, however, the primary concern must be preservation of the resource. Allowing our resources to deteriorate would not only jeopardize high quality recreation for this generation but for future generations as well. To maintain a high quality recreational experience, it may be necessary to limit the number of people using a unit at a given time or to restrict certain activities within that unit. When this occurs, an attempt will be made to provide these activities at a nearby unit that has a higher tolerance to use.

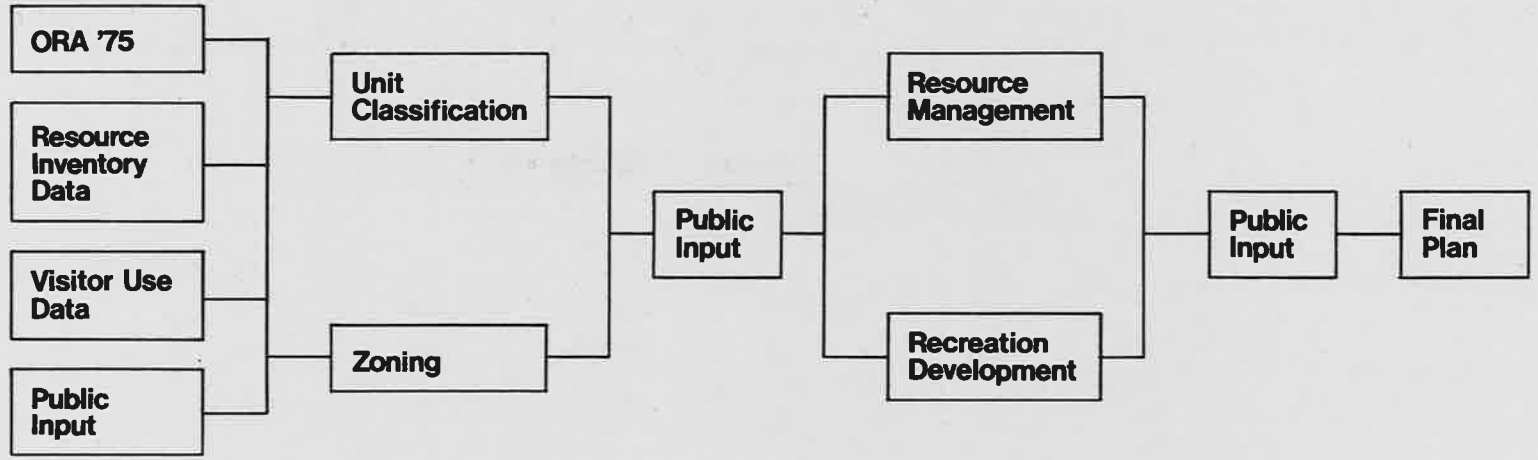
In planning management and development of the various units, the DNR will consider probable future impacts which would affect each unit. In spite of this, unforeseen circumstances are bound to occur. Therefore, each plan should be reviewed periodically to see that it is still relevant in light of current conditions. While a plan can and should be modified if conditions change, nothing should be done that would be detrimental to the objectives set forth in this philosophy.

OUTDOOR RECREATION ACT REVIEW

The Outdoor Recreation Act of 1975 (ORA '75) was enacted by the Minnesota Legislature to "preserve an accurate representation of Minnesota's natural and historical heritage" and to "provide an adequate supply of scenic, accessible, and usable lands and waters to accommodate the outdoor recreation needs of Minnesota's citizens." In an effort to improve long-range planning for the state recreation system, the legislature has directed that management and development plans be prepared for each unit in the system.

ORA '75 also redefined certain recreation unit classifications. For example, the state park classification was divided into recreational state parks and natural state parks. As a part of the overall planning process, the classification of each unit will be reviewed to insure that it is consistent with the resources in that unit. These plans will be used as a guide for developing management policies and planning recreation facilities in each unit. The ORA '75 also states that after August 1, 1977, no development funding will be permitted for any unit until a management and development plan has been completed and reviewed for that unit. By authorizing this planning program, the legislature has taken a significant step toward building a state recreation system in which every Minnesotan can take great pride.

Planning Process Diagram



Summary of Plan

INTRODUCTION TO LAKE MARIA STATE PARK

Lake Maria is a 1,312 acre state park located in north-central Wright County, seven miles west of Monticello. The park lies at the north end of the Big Woods Moraine Landscape Region of Minnesota and consists of steep, rolling woodlands and numerous wetlands. The park is rapidly becoming an island of green in a sea of agricultural and residential development.

CLASSIFICATION

Lake Maria State Park is recommended for classification as a natural state park in accordance with the Outdoor Recreation Act of 1975.

GOAL

The goal for Lake Maria State Park is to provide the public with the opportunity for resource interpretation and enjoyment of the rolling, wooded hills and marshes of the Big Woods Moraine Landscape Region.

RESOURCE MANAGEMENT

Geology

Glacial activity was the primary factor in the formation of the natural resources that make up Lake Maria State Park. The rough, hilly terrain which is dotted with many small, shallow lakes and marshes is an indication of a terminal moraine formed by a receding glacier. The moraine in this case is the St. Croix moraine, which stretches through central Minnesota in a large arc.

Water Resources

Water resources are managed in two categories: ground water and surface. The underground hydrology of the area has not been adequately studied. The existing wells in the park do, however, provide an adequate water supply.

There are three bodies of water totally within and two partially within the park boundary that are of substantial size. There are also numerous potholes, ponds, and marshes.

The management objectives are to protect the ground water from degradation, restore wetlands which have been drained, and protect the surface water bodies from degradation.

Fisheries

Bjorklund Lake is the only water body in the park that is classified as a fishing lake. Lake Maria offers some fishing opportunities but contains primarily rough fish. The management objectives are to provide a remote fishing experience and to eliminate rough fish from the larger lakes. Bjorklund Lake will be monitored for winterkill and fishing pressure. Once a fish barrier is built at the mouth of the watershed, DNR fisheries will poison and re-stock both Maria and Bjorklund lakes.

Soils

The moraine in the park area is made up of gravelly soils on the upland hills and marsh or peat soils in the lowlands. The primary soil problem found in the park is erosion on the roads and trails. The effect of new development on soils must be considered. The management objective is to correct present and prevent future soil eorsion problems. It is recommended that development be located on soils that can handle the surface use and sewage output, and that enclosed sewage systems should be constructed where necessary.

RECREATION MANAGEMENT

The following actions are recommended to enhance the park's attractiveness and improve management:

Vehicular Access

- Sign I-94 at the southern (TH 25) and northern (CSAH 8) exits to the park with large readable signs.

- Pave the entire park road system and parking lots.

Administrative Facilities

- Redesign and remodel the manager's residence.

- Construct a garage for the manager's residence.
- Paint the shop/warehouse.
- Construct an oil and gas storage building.
- Build an unheated storage building with a loading ramp.
- Landscape around the contact station.

Utilities

- Bury the main feeder power lines to the administrative and picnic areas.

Camping

- Develop 40 individual remote campsites.
- Eliminate the existing individual and group campsites.
- Develop three or four new group campsites near the trail/interpretive center.

Picnicking

In the existing picnic area:

- Reduce the number of sites.
- Thin out the overstory to allow more sunlight to penetrate.
- Construct a surfaced circulation system.
- Construct permanent sanitation facilities.

The existing group camping area will be converted into a group picnicking area. In this area:

- Construct a surfaced circulation system.
- Construct permanent sanitation facilities.
- Redesign parking lot.

Trails

- Construct a year-round trail/interpretive center.
- Develop a multi-use trail providing access to the trail center and passage through the park (only if snowmobile trails are developed outside of the park, up to the park boundary).
- Convert all existing trails to ski touring/hiking/interpretive trails.
- Construct five additional miles of hiking trails.

Water Sports

- Maintain the existing boat launch on Lake Maria.
- Provide rental canoes on Bjorklund and Maria lakes.

INTERPRETIVE PROGRAM

The present program consists of a morning hike for children, a canoe float at sunset, and movies and slides in the evening. The management objective is to provide year-round, multi-media interpretive programs. The recommendations are to provide a variety of interpretive programs with the big woods, animal habitats, and the decidious forest/tall grass prairie transition zone as themes. The programs will use the new interpretive center for displays and multi-media presentations and the trails for naturalist-led and self-guided hikes.

BOUNDARY CHANGES AND ACQUISITION

Only approximately twenty acres contained in the narrow strip on the north side of Lake Maria State Park are not presently state owned. The management objective is to provide enough acreage within the park to adequately protect the park's character and natural resources. The recommendations are to expand the boundary to the west, adding approximately 280 acres and all of the remainder of Maria Lake. Purchase of the twenty acre parcel will be postponed for the immediate future unless one of the landowners approaches the state to sell the property.

STAFFING AND EQUIPMENT

The park staff consists of a full-time manager, a CETA naturalist, and two part-time laborers. The present equipment consists of one ½-ton pickup, a 1949 Ford tractor and a snowmobile. The management objective is to provide adequate staff and equipment to efficiently run the park and carry out this management plan. The recommendations include the addition of an assistant manager (technician), two park workers, a naturalist, and a full complement of equipment.

Unit Character

REGIONAL PERSPECTIVE

Lake Maria State Park is located at the northern end of the Big Woods Moraine Landscape Region, which makes up the southern portion of the "Big Moraine Complex." This region is characterized by the rough, wooded terrain and terminal moraines left by the retreating glaciers. The area is underlaid by a sandy soil typical of morainic drift, but of a finer variety than found in moraines further north.

The area was originally covered by northern hardwoods (maple, basswood, elm, and oak). After the Sioux Indians deeded an area of land, including Wright County, to the U.S. Government in 1851, settlers moved in and started clearing these woods for agricultural purposes. For various reasons, however, a few patches of woods were left. One of these is in Lake Maria State Park.

The land use of the area is predominantly agriculture, but urbanization is pushing into the eastern portion of the county and hobby farms are being established along the eastern boundary of the park.

According to the Project 80 Report of 1971, Lake Maria is in a region that has the highest need for more recreational facilities. Wright County, however, has a rapidly developing county park system. Private industry and the YMCA are developing or have developed recreation complexes which will help alleviate this potential shortage. These facilities are managed by federal, state, county, municipal, and private agencies and serve local, regional, and statewide populations.

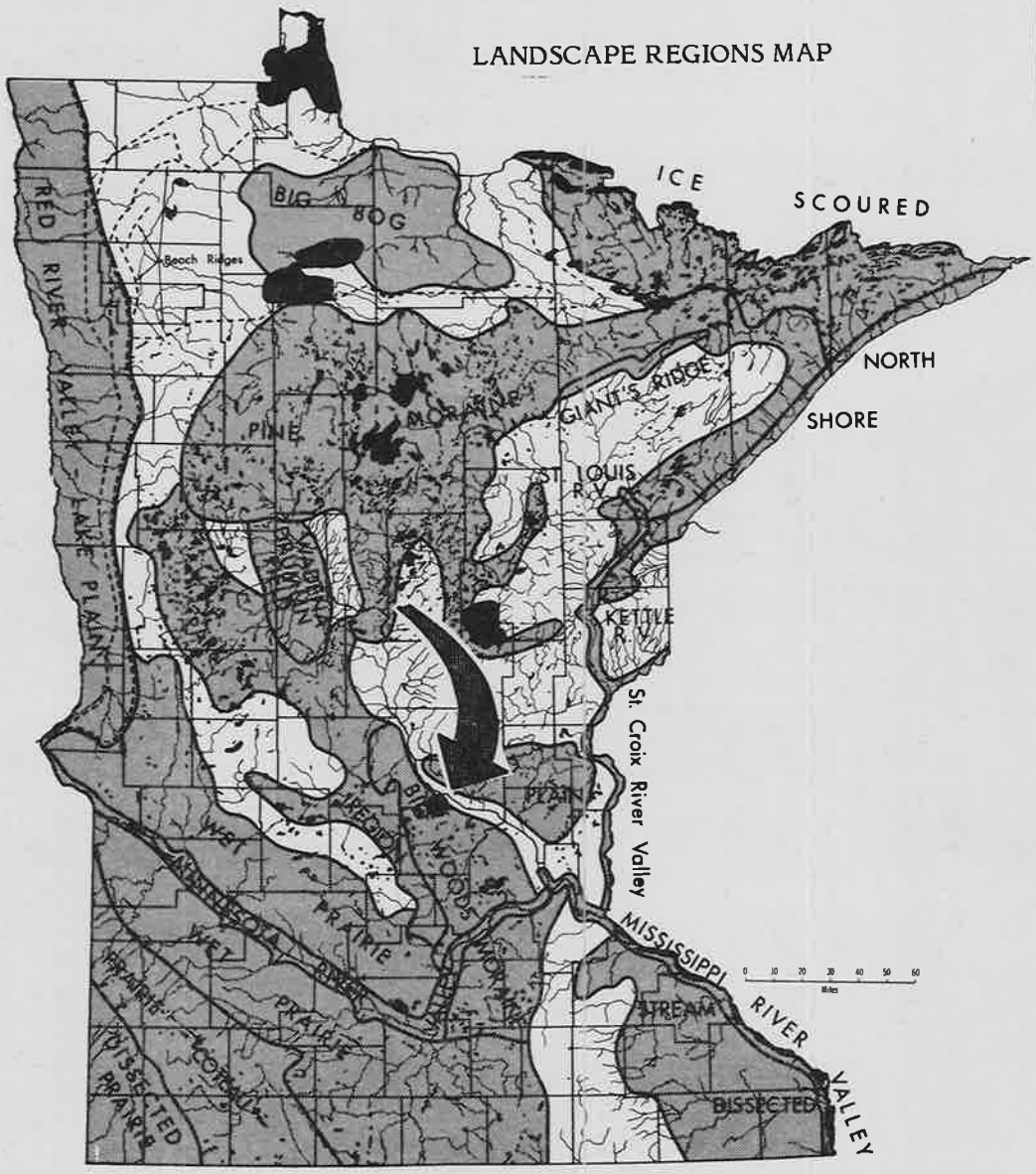
The economic impact that a park has on the surrounding region is difficult to determine. The Department of Economic Development stated that Wright County derived 2.3% of its gross sales from tourism-travel expenditures. This was below the 3.4% average for the state. These expenditures include all monies spent by tourists in the county, including food, lodging, and retail goods. The small community of Silver Creek may benefit from the park but lack of development and use has prevented these benefits from being fully realized.

Sources:

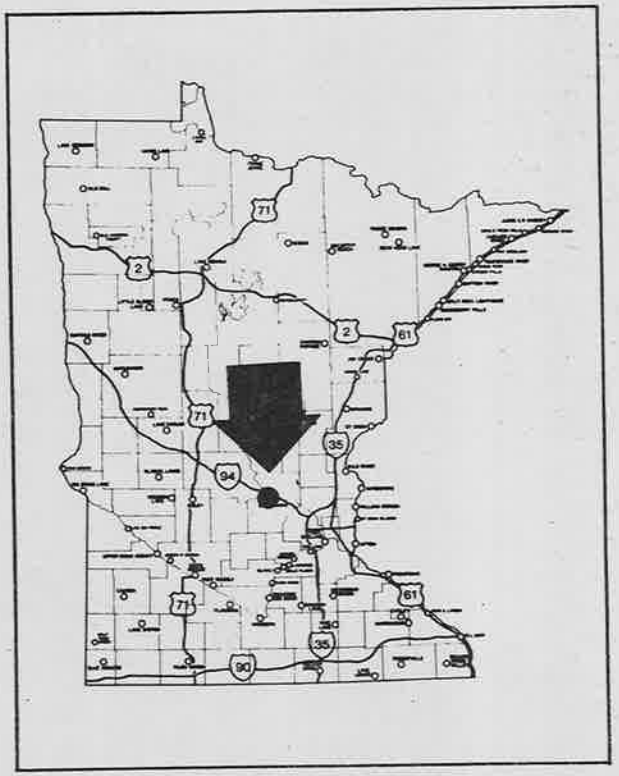
Minnesota Department of Natural Resources, Bureau of Planning and State Planning Agency, Environmental Planning Section, Minnesota Resources Potentials in State Outdoor Recreation: Project 80 Staff Report No. 1, St. Paul: MN Dept. of Nat. Res. and MN State Planning Agency,1971).

Department of Economic Development, The Economic Distribution of Tourist/Travel Expenditures in Minnesota by Regions and Counties, (St. Paul: Department of Economic Development, 1975).

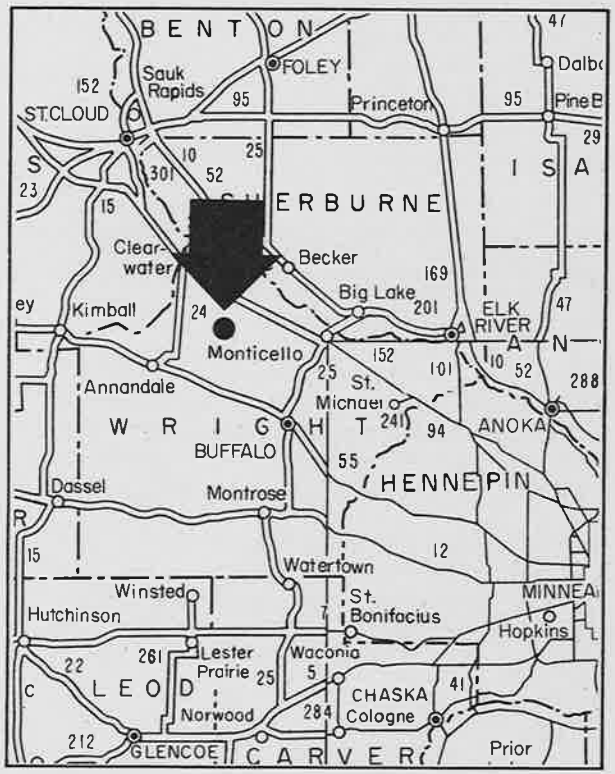
LANDSCAPE REGIONS MAP



LOCATION MAP

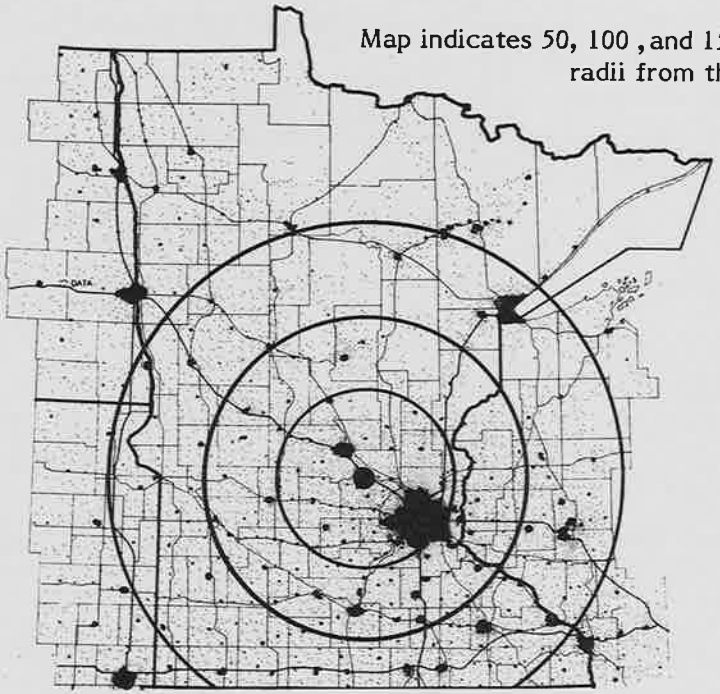


VICINITY MAP



POPULATION DISTRIBUTION 1970

Map indicates 50, 100, and 150 mile radii from the park.



PROXIMITY TO POPULATION CENTER

Center	*Distance	Travel Time	Approximate Population
St. Cloud	23	1/2 hr.	42,223
Twin Cities	45	1 hr.	2,000,000
Counties within 25 miles			
Anoka			180,300
Benton			22,600
Carver			33,000
Hennepin			924,800
Isanti			20,300
McLeod			28,000
Meeker			20,400
Mille Lacs			17,900
Sherburne			25,000
Stearns			100,700
Wright			46,700

GEOGRAPHIC PERSPECTIVE

Lake Maria State Park is located in central Minnesota (Wright County) approximately 23 miles south of St. Cloud and 45 miles northwest of the Twin Cities. The state presently owns 1,292 of 1,312 acres authorized in the park.

The private land consists of a narrow neck extending from the northern park boundary. Because of its shape and small size, it has been ignored in the bulk of this plan.

Legal Description: Secs. 3, 4, 9, and 10.
T121N R26W

Ownership:

State Owned	1,292 Acres
Private	20 Acres
Total Statutory Acreage (approx.)	1,312 Acres

Wright County is served primarily by I-94, which cuts across the northeast corner of the county from the Twin Cities. Trunk Highways (TH) 55 and 12 also radiate from the Twin Cities providing access to the area. TH 25 runs north-south through the county, providing access for people in the east-central and south-central parts of the state. Once in the county, the park may be reached from the south via CSAH 39 and Wright County 111, or from the north via CSAH 8, a township road, and County 111.

Lake Maria is within day-use driving distance from St. Cloud and the Twin Cities, and within weekend-use driving distance from nearly all the population centers in the state. However, the lack of development has limited the use primarily to local residents, with some people coming from the population centers for ski-touring. Future development, along with Lake Maria's central location, could vastly increase the number of users in this park.

CLIMATE

Lake Maria State Park is subject to the strong continental weather patterns that influence all of Minnesota. The area is influenced by cold Arctic air during winter months and is frequently dominated by the hot Gulf air masses during summer months. The wind off Maria Lake cools the major day-use area in the summer. Most of the forest areas that are used for winter activities (skiing and snowmobiling) are sheltered from the cold northwest wind by land forms and forest vegetation. The combination of abundant snowfall, cold weather, and shelter makes for ideal snow conditions and comfortable temperatures for users.

Temperature Variations

Mean January Maximum	20°F
Mean January Minimum	0°F
Mean July Maximum	84°F
Mean July Minimum	60°F

Mean Average Extremes/Frequency

-0°F 47 days/year
+90°F 12 days/year

Precipitation

Annual Total	28"
Annual Snowfall	40-45"

Prevailing Winds

Northwest
South-Southeast (May-October)

Source:

Kuehnast, Earl L., Climate of Minnesota, U.S. Department of Commerce, December, 1959.

GEOLOGY

The bedrock under the park is predominantly quartz diorite (granite) from the middle Precambrian era. This rock is part of an extensive field stretching from just south of the park to the northeast side of Mille Lacs Lake. There are numerous places in this field where the intrusives are exposed and have been quarried. Pink granite was and is quarried at Rockville and Cold Spring. Red and gray granites are quarried near St. Cloud. In the park, however, the bedrock is covered by several feet of drift deposited by various glaciers.

The Great Ice Age substantially influenced the surface geology of the park area. Parts of three glaciers covered the park. The Nebraskan and Kansan glaciers, first two of the age , covered the area between 1,000,000 and 300,000 years ago. The most recent, the Wisconsin, terminated about 10,000 years ago. The majority of the till in the park is from various stages of the Wisconsin ice. The park lies within the St. Croix moraine formed by the St. Croix phase of the Superior lobe and was later overrun by the Grantsburg-Des Moines obe. Thus, there is red sandy till from the Superior Basin covered in places by highly calcareous, yellowish-brown or light olive-brown loam to clay loam that is slightly mottled with pale yellow or gray till carried from the Red River Valley. Though the Des Moines lobe was believed to have covered the whole county, there are many areas in the park where the red till of the Superior lobe is exposed and forms the parent material for one complex of soils.

The potential for finding commercially extractible concentrations of major metals in the Lake Maria area is very low. Based on the type of bedrock, uranium and copper may be present, but the poor geologic reliability of the area would make any mining venture extremely speculative.

Source:

Schwartz, G. M., and Thiel, G. A. 1954. Minnesota's Rocks and Waters. Minneapolis: University of Minnesota Press.

PARK HISTORY

Lake Maria was established through two separate pieces of legislation. The 1947 legislature authorized the establishment of a state park not to exceed 1,000 acres at the location of the present park. The land was to be acquired through exchange of forest land with the United States Forest Service. The Forest Service, however, was not able to obtain the necessary funding for many years and this particular method of acquiring state park lands was found to be highly unfavorable to the state. Thus, in 1963 a new bill was passed establishing the present park through direct purchase of the land.

Lake Maria was established as a result of the foresight and concern shown by local citizens. Prime movers Marcus Zumbrunnen and Harry Larson, along with other concerned citizens, formed the Wright County Federation of Sportsmen to promote the preservation of open space and wildlife lands. This group, with the aid of Representative Robert Lee of Annandale and Senator Victor Jude of Maple Lake, was instrumental in obtaining the legislation needed for the establishment of the park.

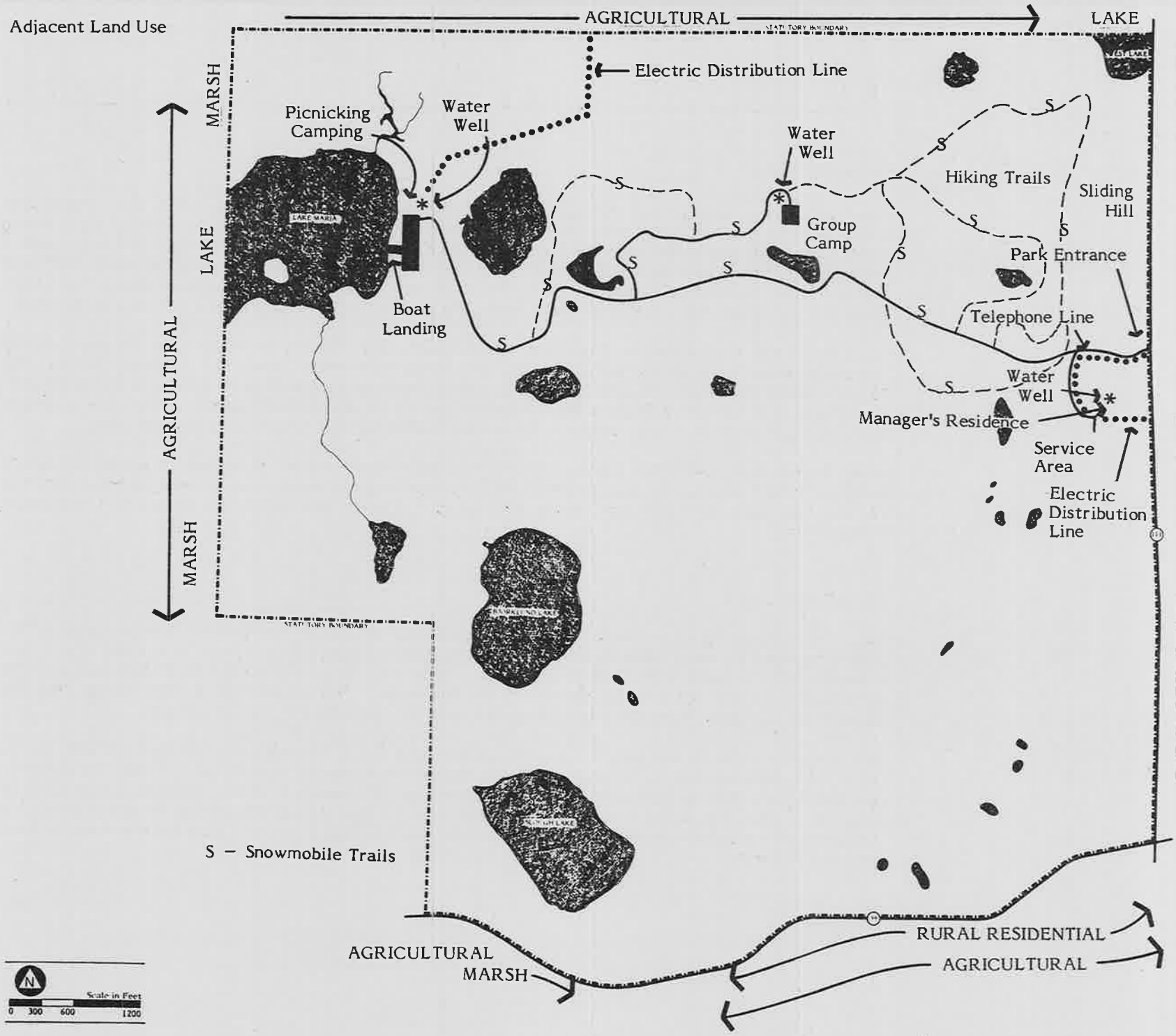
Being a new park with little development, Lake Maria has received little use. Use has increased, however, from 1,460 visitor-days in 1965 (the first year records were kept) to over 25,400 visitors in 1975. The park is really just being discovered. Future attendance is expected to increase dramatically.

ADJACENT LAND

The land surrounding Lake Maria State Park is entirely in private ownership. The east side of the park is bounded by rural homesites with a few small agricultural fields. There is a small church and cemetery off the northeast corner of the park. The rest of the north side and the entire west side are agricultural on the uplands and marsh on the lowlands. The south side is also being used for agriculture, although there are a few homesites near the southeast corner of the park.

The access corridor to the park is a gravel country road (111), running along the east boundary of the park. The right-of-way for County 111 has a mixed vegetation of woods and old open fields which extends for one mile on both sides of the park entrance. The east side of the corridor is in agriculture with rural homes and hobby farms. The west side is in the park except for the far north end which has a church and cemetery located on it. The corridor joins a through road, CSAH 39, one mile south of the park entrance.

Adjacent Land Use



INTRODUCTION

In accordance with the Outdoor Recreation Act of 1975, the park planning staff has reviewed the classification of each park under study this biennium. After the park resource inventory was completed for each unit, the planning staff determined:

A. Which of the eleven classifications from ORA '75 was most appropriate for the unit

B. Whether sub-units should be considered to deal with special areas within the unit (scientific and natural areas or other sub-units authorized in ORA '75)

C. Whether administration of the unit should be reassigned to other governmental bodies (other state agencies, county or local governments)

Each park has been recommended for classification according to its resources and as such will be managed and developed according to the nature of those resources and their ability to tolerate visitor use.

CLASSIFICATION OBJECTIVE

The objective of classifying state parks is to determine the most suitable management direction for a given park based on its natural resources and recreational potential. Of primary concern in setting management direction is the protection and perpetuation of those natural resources which set a particular park apart from all other parks. Also of concern is the need for a statewide recreation system which will meet the legitimate recreational needs of our society without unduly harming the resources of the unit.

It should be noted that the natural state park classification does not necessarily exclude recreational activities from a unit. This classification places management and development emphasis on the preservation and interpretation of the natural resources within the unit. By the same token, recreational state park classification emphasizes a wide range of recreational activities, but not to the exclusion of interpretive activities or to the point where the natural resources within the park are damaged.

UNIT CONSIDERATIONS

Lake Maria State Park was considered for classification as a natural state park and as a recreational state park. Evaluation of the park and its resources led to classification as a natural state park because it substantially fulfills the following criteria:

> "Exemplifies the natural characteristics of the major landscape regions of the state, as shown by accepted classifications, in an essentially unspoiled or restored condition or in a condition that will permit restoration in the foreseeable future; or contains essentially unspoiled natural resources of sufficient extent and importance to meaningfully contribute to the broad illustration of the state's natural phenomena."
>
> "Contains natural resources, sufficiently diverse and interesting to attract people from throughout the state."
>
> "Is sufficiently large to permit protection of the plant and animal life, and other natural resources which give the park its qualities, and provide for a broad range of opportunities for human enjoyment of these qualities."

Lake Maria contains one of the last remaining excellent examples of the region's original landscape. The rolling terrain, diverse vegetation, and numerous water bodies provide an ideal setting to enjoy the natural experience.

The park is now relatively undeveloped and not well known, but once it is discovered, it has the natural resources to attract visitors from outside the area.

The park is sufficiently large to protect its natural resources as long as development and use is carefully planned. The park's 1,312 acres are state-owned except for 20 acres.

Lake Maria was not classified as a recreational state park because the resources, particularly the soils, are sensitive to any development. Consequently, it would be difficult to accommodate intensive recreational facilities.

PARK GOAL

The goal for Lake Maria is to provide the public with an opportunity for resource interpretation and enjoyment of the highly scenic rolling, wooded hills and marshes of the Big Woods Landscape Region. Lake Maria is situated near the north end of this region, which is characterized by a predominance of oak species, as compared to the maple and basswood found in the southern parts of the region. Agricultural and urban expansion have altered the vast majority of this region, intensifying the need for the protection and perpetuation of the preserved areas like those found at Lake Maria. In this way, today's generation, as well as future generations, may see what much of central Minnesota looked like prior to European settlement.

ZONING

Introduction

Before the specific management of an area within a park can be considered, a zoning concept must be established to evaluate the various management alternatives within the park. General management strategies can then be determined by zoning the park according to prime management objectives.

Objective

To establish a zoning system which formally recognizes the various features of a park and delineates appropriate non-destructive uses

To identify those areas which are suitable for specific uses and establish certain management requirements necessary to provide for the overall recreational needs of park users while protecting natural resources.

Management Zoning

A land classification system utilizing six major management zones has been adopted which will permit effective, comprehensive management of park resources while centralizing park development and uses.

Land Classification Zones

The six management zones along with a description of their prime management objectives are defined below All six management zones may not be found in each and every park.

The final zoning map is a composite of all potential zones showing where management decisions have been made to eliminate conflicts between individual zones. This final zoning map will guide the recreation and resource management decision making process.

Ecological Protection Zone - The ecological protection zone includes areas having ecological communities which are either sensitive to certain uses, require special management or protection and/or have significant value for research. Areas having unique or endangered wildlife habitat or vegetative communities are included in this zone. Management will be directed toward perpetuating these ecological values. Development will be restricted to interpretive facilities or trails which do not disturb these values. All forms of access may be prohibited when necessary. In certain instances, small structures may be necessary to orient use and protect habitat.

Outstanding Natural Feature Zone - The outstanding natural feature zone includes areas which are geologically or biologically of statewide significance. These features often are the park's principal resource attractions and will be managed to provide for visitor enjoyment without impairing their quality. Development of restricted forms of recreation facilities may be necessary to allow for enjoyment and interpretation. All development must be compatible to the features of the site to protect its natural character. Resource management will be restricted to restoring the resources and perpetuating their natural characteristics.

Primitive Zone - The primitive zone includes extensive areas of land and water remote from high-density use areas and major development within the park and removed from the external influences of civilization. Development will be restricted to non-riding trails, primitive walk-in campsites and appropriate interpretive facilities. Resource management will be directed toward restoring and perpetuating the natural environment and the aesthetic character of that environment.

General Environment Zone - This zone includes areas which, while they may be very scenic, contain no identified outstanding natural, historical or cultural features. In addition, the resources in this zone must be able to tolerate moderate use. Properly managed, this zone will serve to unite the other zones into a cohesive unit.

Historical and Cultural Zone - The historical and cultural zone includes those sites which help to illustrate the historical and archeological heritage of the area that should be preserved or restored. Activities should emphasize the interpretive values of the site. Recreation development will be restricted to activities such as non-riding trails, small picnic areas, interpretive facilities and parking. Activities and improvements should be limited to those which will not detrimentally affect the preservation and restoration of these sites and should be reviewed with the Minnesota Historical Society. All historical or cultural sites should be surrounded by sufficient natural buffers to minimize encroachment from other activities. Natural resource management activities should maintain and perpetuate historical and cultural values while insuring regeneration of native or historically compatible plant and animal species.

Development Zone - The development zone includes lands and waters where major park development and intensive use, both existing and proposed, has or will substantially alter the environment. This zone will be managed to provide and maintain the level of development necessary to serve the needs of relatively large numbers of visitors and of park administration. Park roads extending beyond this zone may be included in appropriate natural or historic zones through which they pass. Resource management will be directed toward improving the recreation capabilities and characteristics of the environment. However, native vegetation should not be extensively replaced solely for aesthetic reasons.

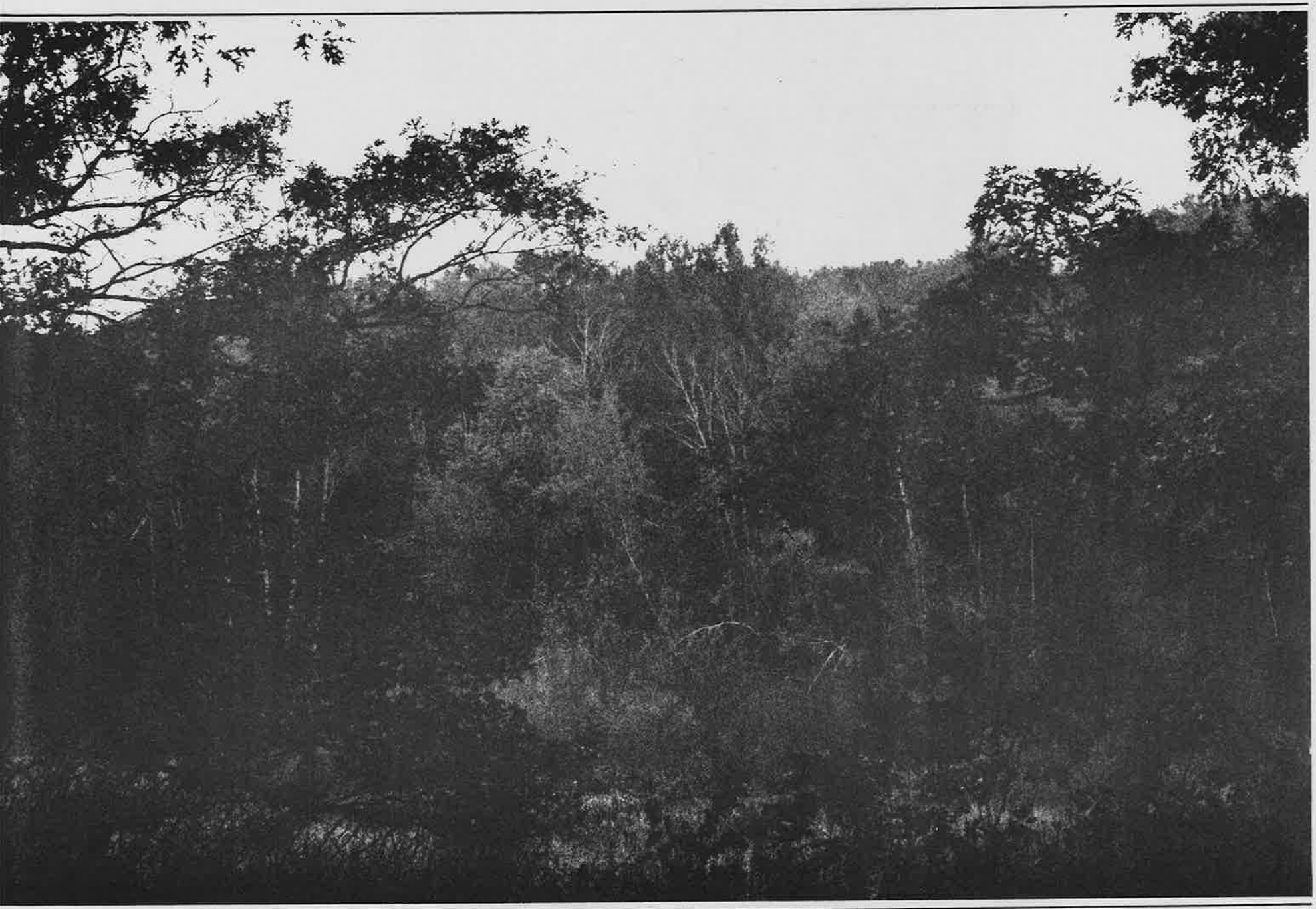
Potential Zones

Potential Ecological Protection Zone, (Map, page 23) - Areas that have unique or unusually high wildlife value are considered potential ecological protection zones. These potential areas include most wetland communities, as well as open areas and the interface areas between them and the forest communities. This transition zone between major vegetation types is known as an ecotone (edge effect). Since each overlapping vegetative community contains its own characteristic organisms, it is common to have a greater variety and density of life in the ecotone. It is desirable to provide additional protection to these edge areas since wildlife is a key attraction at Lake Maria State Park.

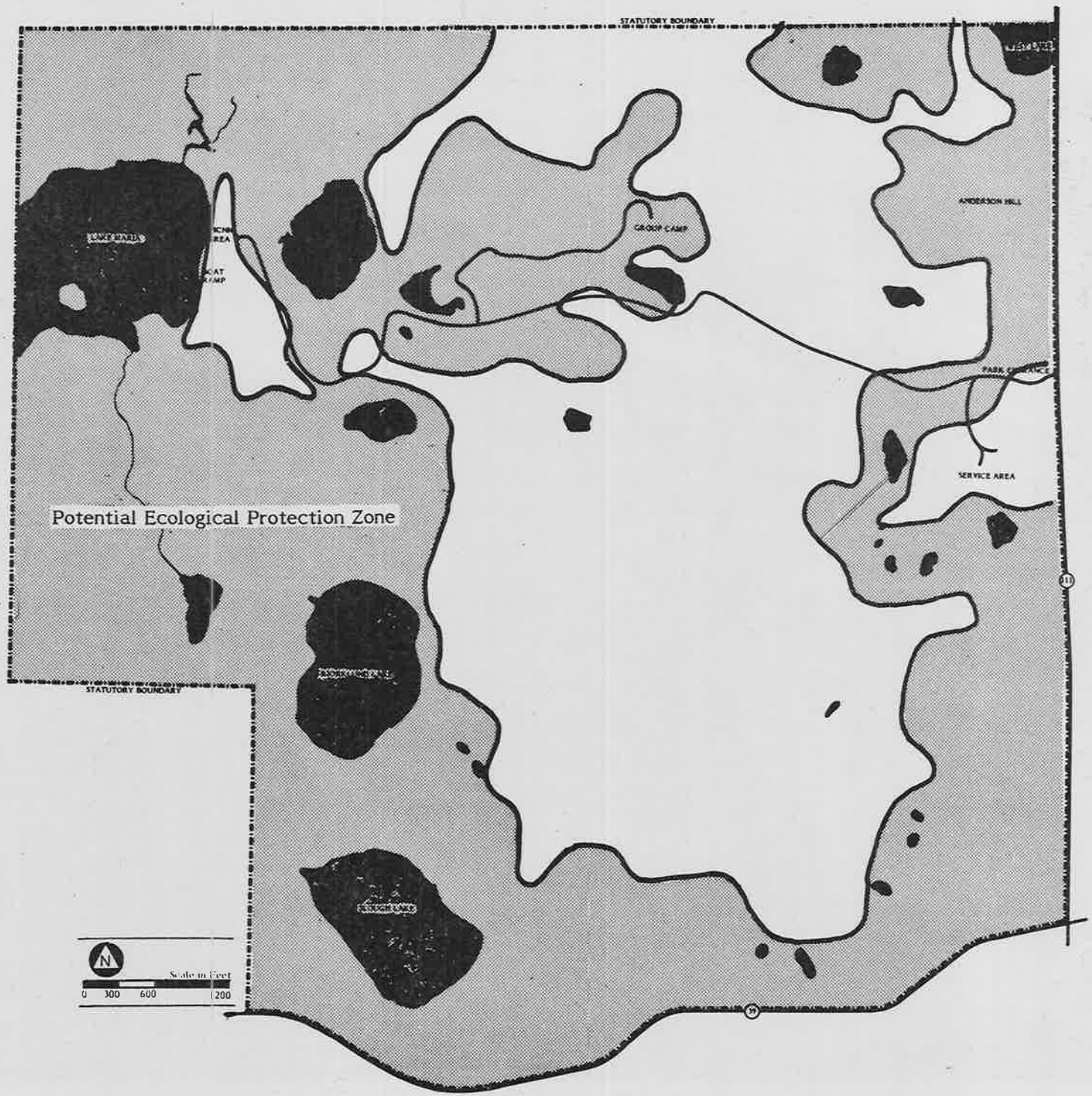
Potential Outstanding Natural Feature Zone, (Map, page 24) - Lake Maria State Park contains the largest and best example of the northern big woods vegetation community in the state park system. Because much of the surrounding big woods vegetation has been cleared for agricultural purposes, only a few large blocks of the forest community remain. Since one of the primary goals of the state park system is "conservation and proper utilization", this major vegetation community would best be preserved and properly utilized if it were classified as an outstanding natural feature.

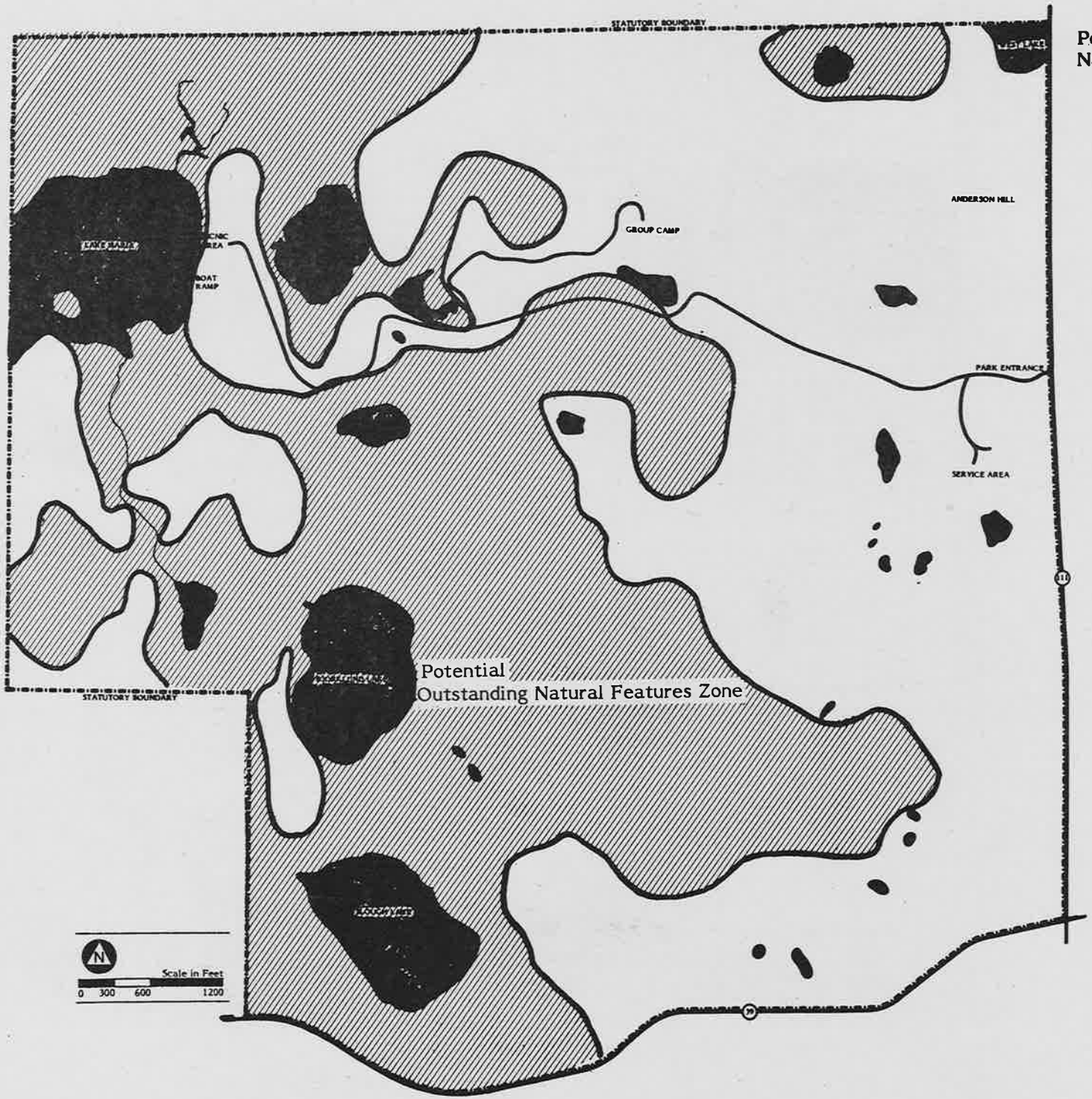
The park also has significant and very diverse wetland communities of marshes, lakes, and swamps. These communities make up over one quarter of the park's surface area. Considering the rapid decline of wetlands in the surrounding countryside and the hunting pressure that other remaining wetlands receive, the water resources within the park are becoming more valuable both to migrant and permanent wildlife residents. These wetland communities are major attractions to the state park and are potential outstanding natural features.

Potential Development Zone, (Map, page 25) - Few of the soils within Lake Maria State Park are excellent for any major development. They range in quality from soils that impose moderate limitations to development to soils that impose very severe limitations. Since parks are intended to be used and since user facilities are needed in parks, the best place to locate them is in areas where they will have the least impact and where they can be built without having to spend enormous amounts of money overcoming the limitations. The areas that can be considered as potential development areas are those made up of the Emmert-Milaca soils complex or the Hayden Series soils.



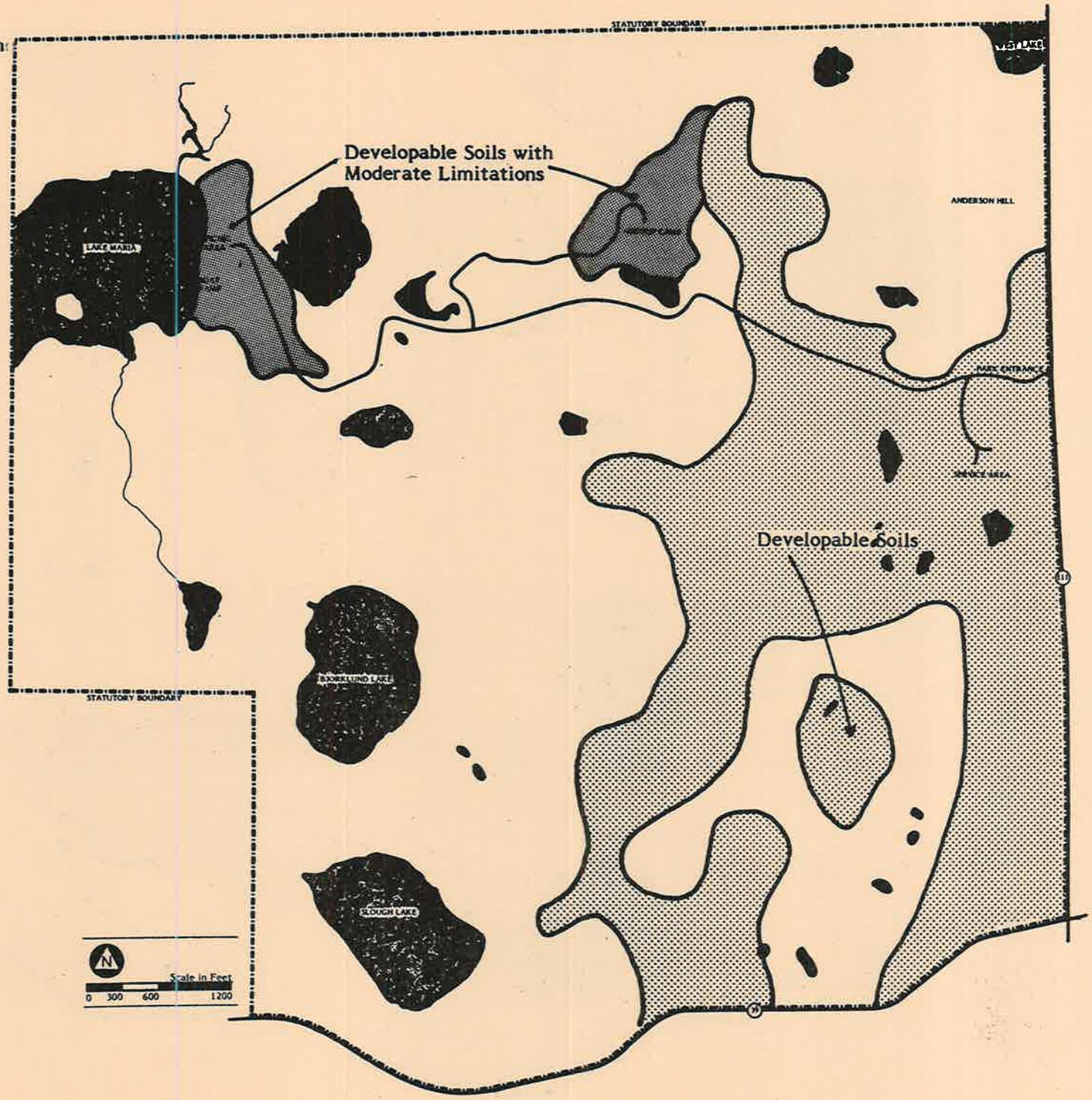
Potential Ecological Protection Zone





Potential Outstanding Natural Features Zone

Potential Development Zon



Established Zones

There are many areas of the park which could potentially be classified into more than one management zone. Where conflicts exist the area was always classified into the most restrictive category unless the classification proposed is restrictive enough to provide necessary protection.

Zone 1 Ecological Protection Zones - Lake Maria has two ecological protection zones. One is in the northwest portion of the park, and consists of a large, complex wetland community. This zone is highly accessible, yet fragile. Since this zone could be damaged by misuse it has been given a high degree of protection. The second ecological protection zone is a long serpentine zone that extends from the western portion across the southern portion of the park, and finally terminates in the southeast portion. This zone was established to protect another extremely complex series of vegetation which should be protected for its wildlife value.

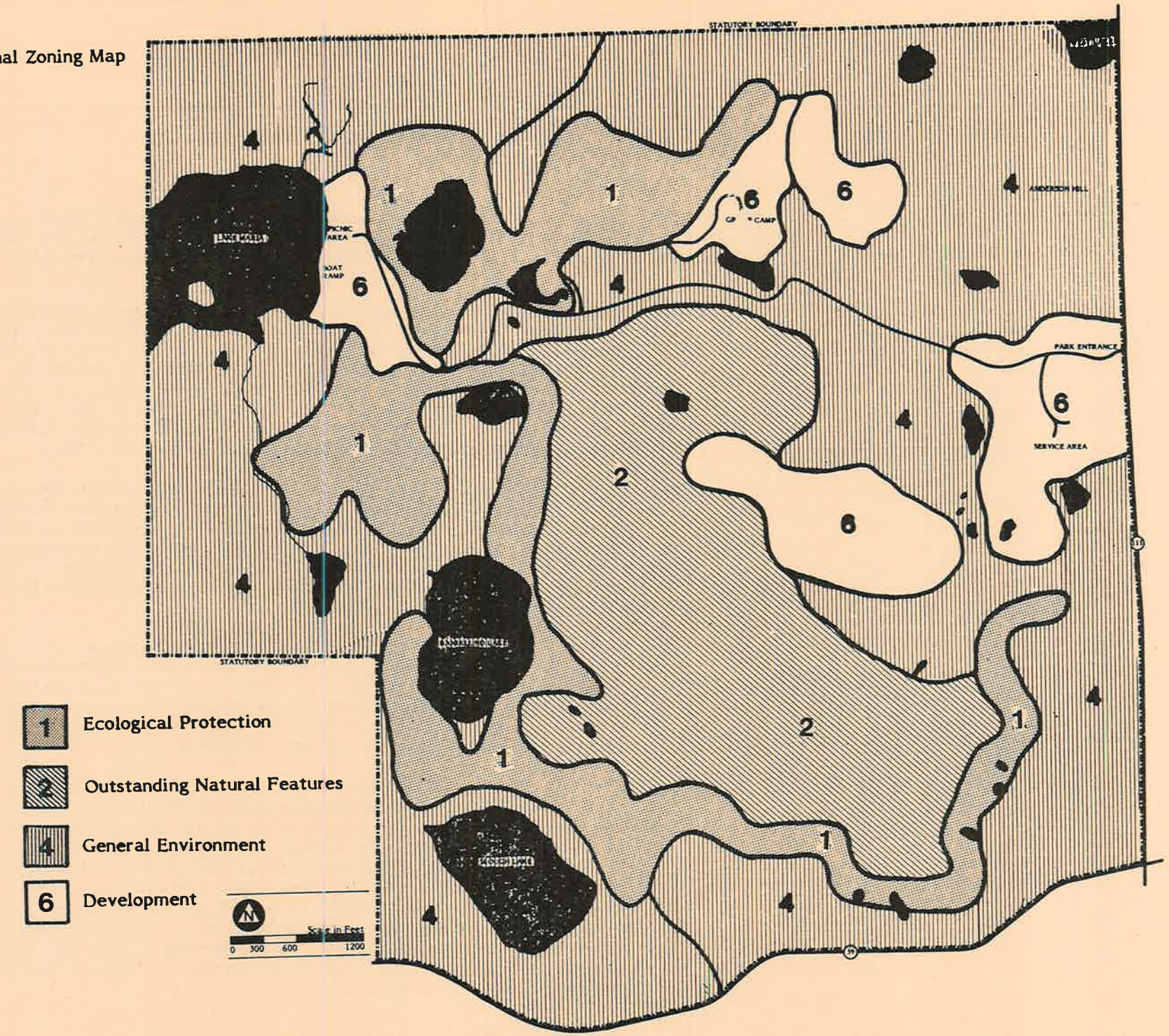
Zone 2 Outstanding Natural Feature Zone - Lake Maria has one large contiguous block of big woods vegetation located in the central part of the park that has been classified as an outstanding natural feature zone. The vegetative community is an outstanding example of the big woods community in the northern portion of its range. Much of this zone also has the potential to be classified as a development zone, but preservation of this extremely beautiful forest community is essential to preserve the scenic quality of the park.

Zone 4 General Environment Zones - Since most facilities proposed outside of the major development zones will be limited to trails and remote interpretive facilities, and all sensitive features of the park have been zoned either ecological protection or outstanding natural feature, there will be no special protection necessary for the rest of the park. The remaining undesignated areas will be zoned general environment, which allows for limited development.

Zone 6 Development Zones - There are five areas in the park that are the most suitable for development. One area is the administration site and vicinity. This area is located on varying soil types. Although some of the soil types are unsuitable for development, there are many smaller areas within this zone that can be used without resource damage. The second major development area is located southwest of the administrative site and has fewer problems, and with the type of development proposed for the park these problems can be solved. There are three other proposed development areas, two of which already contain development, where major soil limitations have been overcome. The final zone is located directly east of the present group camp area and is located on soils that pose only moderate limitations to development.

See Final Zoning Map, page 27.

Final Zoning Map



WATER

Introduction

Water resources are managed in two categories -- ground and surface waters. In general, underground water resources are managed to maintain a high quality groundwater supply. Surface water resources are managed more easily than underground systems. Surface water management programs should include total watersheds, not just a particular lake or stream. Unfortunately, few parks encompass total watersheds, particularly those of streams. By statute, the Division of Parks and Recreation can control surface as well as shoreline use of any lake or stream which is totally within a park's statutory boundary and in state ownership. However, if one or more parcels along a shoreline are in private ownership, a common agreement must be reached before management techniques may be employed on the water body.

Groundwater Inventory

The area including Lake Maria State Park, like most of the state, has not been adequately studied for underground hydrology. Consequently, the only available data source is the logs from the three wells in the park. The wells are all drilled in glacial drift, which means that they are recharged directly from the immediate surrounding area. The first well is in the picnic ground in the west-central part of the park. It is 76 feet deep with a static water level of 20 feet below the surface.

The second well is in the pioneer campground in the north-central part of the park. It is 97 feet deep with a static water level 58 feet below surface.

The third well is at the service center in the east-central part of the park. It is 94 feet deep with a static water level 75 feet below the surface.

There is no water volume information available, but some conclusions may be drawn from the well pumping tests. The first well drew down only 2 feet after eight hours of pumping at 25 gallons per minute. The second well drew down 13 feet while being pumped at 18 gallons per minute. The third well drew down 8 feet after eight hours of pumping at 40 gallons per minute. Such a small drawdown after pumping at those rates generally indicates a high volume well.

There is no available data on water table fluctuations or the quality of these wells. However, the Department of Health checks all park wells annually, and they must be up to their standards or they are closed.

The locations of these wells are shown on the map on page 15 .

Surface Hydrology Inventory

There are three bodies of water totally within and two partially within the park boundaries that are of substantial size. Only two of these have had much data collected from them (Slough and Bjorklund lakes).

Bjorklund Lake is found entirely within the park boundary in the corners of Sections 3, 4,9, and 10 of T 121 N, R 26 W. It has 27 acres of open water but has a high water mark area of 108 acres. The lake has a maximum depth of twenty feet which, along with its small size, limits navigation to small boats. The inlet is a ditch with an intermittant flow from the south. The outlet is through the cattail swamp northwesterly in an undefined channel. The water eventually reaches Silver Creek and the Mississippi River. The runout elevation is approximately five inches below the water surface. There are no water level control structures on this lake and it has about a six inch natural fluctuation plus or minus the regular level which is 17 inches below the bench mark. The shoreline is packed sand on the east and west sides and muck on the ends. The only water quality data available concerns the color, which is greenish-brown, and turbidity, which is 2 feet by Secchi disc.

Slough Lake is also found entirely with the park in sections 9 and 10 of T 121 N, R 26 W. It has 18 acres of open water, but has a high water area of 67 acres. There are no inlets to this lake and the outlet is a ditch flowing into Bjorklund Lake. The shoreline is a floating bog. With the shallow depth and poor shoreline, only flat-bottomed or very small boats could use this lake. The only water quality data available concerns color which is greenish-brown, and turbidity which is 1.8 feet by Secchi disc. This lake is classified as a Type IV wetland which is suitable for waterfowl and muskrat.

The only data available on the other lakes covers size, location, and classification. Lake Maria extends into the park on the west boundary in Section 4 of T 121 N , R 26 W. The lake is officially unnamed but is known locally as Maria. It has 180 acres of water but is not very deep. It is classified as a Type V wetland.

West Lake, in the northeast corner of the park in Sections 2 and 3 of T 121 N , R 26 W , and Sections 34 and 35 of T 122 N , R 26 W , has 88 acres of water. It is classified as a Type IV Wetland.

The other body of water within the park is also unnamed. It is in the northeast quarter of Section 4, T 121 N , R 26 W. The lake has only 17 acres of water and is classified as a Type IV Wetland.

There are numerous other small water bodies in the park which are potholes or ponds, some of which have water only in the spring (Vernal Ponds).

The majority of the data in this section and the fisheries section was taken from the Silver Creek Wildlife Area file in the Ecological Services files.

Management

Objectives:

To protect the groundwater from degradation

To restore wetlands which have been drained

To protect the numerous surface water bodies from degradation

- Specific Management

Water resources play an important role in the management of this park. The lake and potholes provide aesthetic beauty as well as wildlife habitat. The groundwater provides water for the other natural resources as well as the recreational facilities.

The groundwater supply appears to be quite abundant from the well data described in the inventory. The park wells are all located in glacial till. Till aquifers recharge from the porous soils in the surrounding area. These porous soils leach pollutants into groundwater much faster and in greater amounts than other soils and thus must be managed more carefully.

All the water bodies except Maria and West lakes are totally within the park. Adherance to the general water resource policies should provide the bodies inside the boundary with adequate protection. Maria and West lakes, however, could easily be infringed upon. The recommendation is to expand the park to include all of Lake Maria and urge the county to zone the West Lake area to protect it from adverse development.

The drainage ditches will be filled into restore the wetlands.

FISHERIES

Introduction

The primary goal for any fisheries management program is to maintain the optimum natural fish population that a water body can support. This optimum is determined by such factors as water fertility, oxygen supply, food supply, and water temperature. Periodic fishery surveys are conducted to determine species deversity and the size and condition of fish populations. The results of these surveys then determine the classification and site-specific management goals for a water body.

Inventory

There is only one lake (Bjorklund) in Lake Maria State Park that is classified as a fish lake, and it is a combination fish, waterfowl, and muskrat lake (Type V Wetland). The lake is a marginal winterkill lake, mearing that occasionally the fish population is killed off during the winter freeze over.

According to a survey, emergent vegetation covers 75% of the lake. The species, their relative abundance, and location, if available, are as follows:

Emergent Vegetation - Bjorklund

Species	Abundance	Location
Arrowhead	Common	
Hardstem Bulrush	Common	NE, SE, and West side of lake
Cane	Abundant	NW side and Southern tip
Common Cattail	Common	SW, NE, SE, and West side
Reed Canary Grass	Common	
Wide Leaf Sedge	Common	SW, NW, and South tip
Smartweed	Occasional	
Blue Flag	Scarce	
Rice Cutgrass	Scarce	
Wild Rice	Scarce	
Greater Water Dock	Scarce	
Spike Rush	Scarce	
Narrowleaf Sedge	Scarce	
Water Hemlock	Scarce	

Submerged and floating aquatic plants grow to a depth of five feet. The following species were found in this lake:

Coontail	Sago Pondweed
Yellow Waterlily	Flatstem Pondweed
White Waterlily	Lesser Duckweed
Little White Waterlily	Star Duckweed
Greater Duckweed	

Yellow waterlily, found all around the lake except for the west side, was the only species for which the location was known.

In the spring of 1977, a test netting was taken in Bjorklund Lake to determine which fish species are found there. Northern pike, carp, bullheads, and a crappie were netted. An older game lake survey mentioned sunfish also. The northern pike appeared to be the most abundant.

Those species netted this spring were small in size, but some of the northern pike weighed up to three pounds.

Although there is no data, it is likely that northern pike spawn in the swampy area along the north end of the lake.

The other lakes, Maria, Slough, West, and the unnamed lake, may have fish but they have not been recorded and they probably winterkill regularly.

Management

Objectives:

To provide a remote fishing experience for the park visitor

To eliminate rough fish from the larger lakes

- Specific Management

The fisheries management plan concentrates on Bjorklund Lake. The lake is classified as Type V Wetland or marginal fish lake because it will winterkill occasionally. The recommended management practice is to continue monitoring the lake for winterkill and fishing pressure, and stock it with panfish accordingly. There is a fairly large northern pike population in the lake that may grow to a catchable size if they can survive a few winters.

The only fisheries problem in Lake Maria State Park is the rough fish population, particularly in Lake Maria. The rough fish population in Maria has reached such proportions that the vegetation and consequently the wildlife on Maria are suffering. There are four methods that can be used to control rough fish.

The first, and only natural method, is winterkill. The majority of the lakes and ponds in the park are shallow enough to winterkill nearly every winter. Bjorklund and Maria will winterkill only during extreme winters. Therefore, the recommendation is to let nature take its course, even if artificial methods of control are also used.

The second method is seine netting. This method is not very efficient and is expensive over the long run because of the necessary repetitions.

The third is the fish barrier. The barrier is a very effective preventative tool for migration, but it must be used in conjunction with seine netting or poisoning to be totally effective. A barrier is scheduled for Silver Creek below Locke Lake. This will eliminate any further immigration from the Mississippi River, but will not affect the population in the lakes and the stream.

The fourth and last method is poisoning, which is the most effective. However, poisoning kills all species and unless the entire watershed is treated or barriers are placed between the untreated and treated water, the poison will not be 100% effective. In Lake Maria's case, either a barrier has to be installed at the inlet and outlet and the lake treated, or the entire watershed from Lake Mary to Locke Lake must be treated. The cost benefit ratio for the two barriers is not sufficient to warrant the expense, requiring the treatment of the entire watershed. This, in turn, is unpopular because that would virtually eliminate fishing for a few years in the lakes. Since some support for this treatment was voiced at the final public meeting, poisoning should be considered.

The final decision as to which control method will be used will be made by the area fisheries manager. The costs for the recommended management will be borne out of the fisheries budget.

SOILS

Introduction

Soil structure, type, and fertility play an important role in determining what types of vegetation are presently found in the park or what types of plant communities might logically be reintroduced to replicate plant communities which exerted a dominant influence in the formation of that soil type.

In developing a park management plan, detailed soil surveys of the park are a necessity. Soils data must be considered when locating park roads, recreation buildings, campgrounds, picnic areas, sewage lagoons, and septic tank filter fields.

Inventory

The soils of Lake Maria were created from glacial tills. The parent material for all but the Emmert-Milaca complex was deposited by the Mankato substage of the Wisconsin age. The parent material for the Emmert-Milaca complex was deposited by the Cary Patrician lobe of the Wisconsin age. The only place in Wright County where this till is exposed is in and around the park.

The soils range from the excessively well-drained Emmert-Milaca complex and Burnsville series to the poorly-drained Glencoe, peat, muck, and marsh series. In between these are the Hayden clay loam soils, Milaca soils, and beach materials.

The Emmert-Milaca complex is the most dominant soil with marsh a close second. These two soils make up approximately 75% of the soils found in Lake Maria. The Hayden clay loam on 18-25% slopes is also common.

Most of the soils in the park cannot tolerate development. Only the Hayden fine sandy loams and Emmert-Milaca soils under 12% slope will allow development of recreational facilities (i.e., picnic and campgrounds and trails).

The soils table lists some of the characteristics and limitations of each soil series. The soils map shows the locations of each series in the park.

Chart Legend (Soils Suitability/Characteristics Table)

Slight - Limitations for a stated use are minor and can be overcome easily.

Moderate - Limitations for a stated use can be overcome by special planning, design, or maintenance.

Severe - Limitations for a stated use generally require a major soil reclamation, special design, or intensive maintenance.

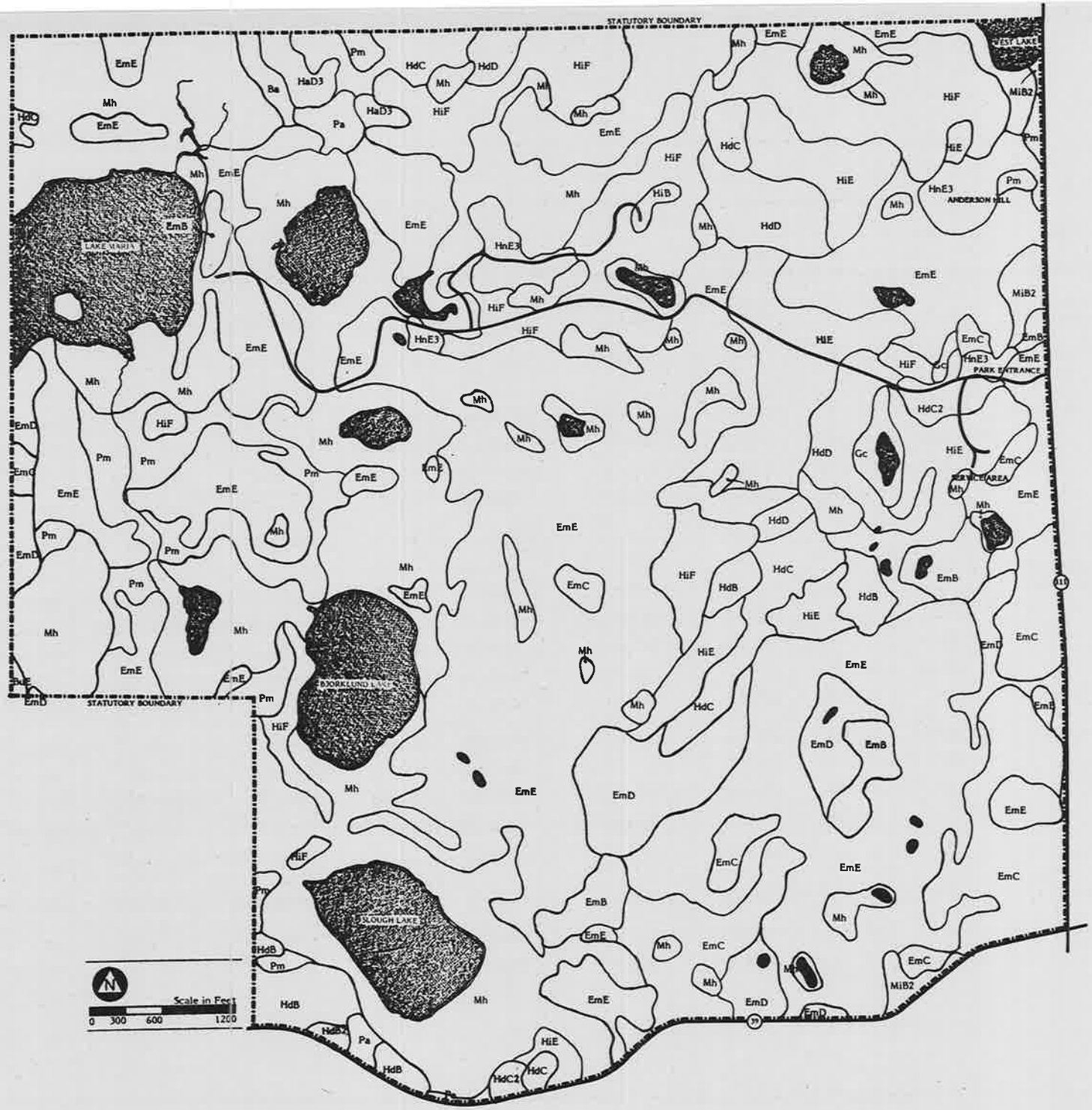
*Permeability measured in inches per hour
**Based on buildings with a basement or foundation

LIMITATIONS

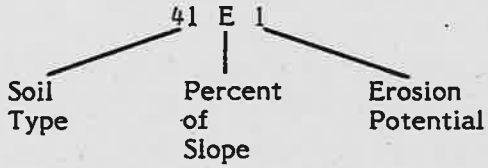
[1]Slope
[2]Surface Texture
[3]Depth to Bedrock
[4]Flooding (Duration & Frequency)
[5]Pollution Potential
[6]Permeability
[7]Water Table
[8]Frost Action
[9]Drainage
[10]Shrink-Swell

Soil Type	Map Code	Slope	Permeability*	Erosion Hazard	Potential Frost Action	Intensive		Paths and Trails	Recreation Buildings**	Sewage Lagoons	Septic Tank Filter Fields
						Picnic Areas	Camp Areas				
Beach Material	Ba	0- 6%	Variable	Severe	Moderate	Very Sv[4,7]	Very Sv[4]	Very Sv[4,7]	Very Sv.[B,4,7]	Moderate[D,6]	Very Sv[D,4]
Burnsville	BuE	18-35%	0.6-6.3+	Severe	Low	Sev-V Sv[1]	Sev-V Sv[1]	Sev-V Sv[1]	Sev-V Sv[B,7,1]	Severe[D,6]	Severe[D,1]
Emmert-Milaca	EmB	2- 6%	1.0-6.3+	Severe	Moderate[D]	None-Slt	None-Slt	None-Slt	None-Slt	Severe[D,6,2]	Moderate[D,6]
	EmC	6-12%	1.0-6.3+	Severe	Moderate[D]	Moderate[1]	Moderate[1]	None-Slt	Moderate[B,1]	Severe[D,6]	Moderate[D,6]
	EmD	12-18%	1.0-6.3+	Severe	Moderate[D]	Severe[1]	Severe[1]	Moderate[1]	Severe[B,1]	Severe[D,6]	Severe[D,6,1]
	EmE	18-35%	1.0-6.3+	Severe	Moderate[D]	Sev-V Sv[1]	Sev-V Sv[1]	Sev-V Sv[1]	Sev-V Sv[B,1]	Severe[D,6]	Very Sv[D,1]
Glencoe	Gc	0- 2%	0.4-2.0	Slight[D]	High	Very Sv[9,7]	Very Sv[9,7]	Very Sv[9,7]	Very Sev.[B,9,7]	Severe[D,7]	Very Sv[D,7]
Hayden Fine Sandy Loam	HdB	2- 6%	0.5-2.0	Moderate[D]	Moderate	None-Slight	None-Slight	None-Slight	None-Slight	Moderate[D,1]	Moderate[D,6]
	HdB2	2- 6%	0.5-2.0	Moderate[D]	Moderate	None-Slight	None-Slight	None-Slight	None-Slight	Moderate[D,1]	Moderate[D,6]
	HdC	6-12%	0.5-2.0	Severe	Moderate	Moderate[1]	Moderate[1]	None-Slight	Moderate[B,1]	Severe[D,1]	Moderate[D,6]
	HdC2	6-12%	0.5-2.0	Severe	Moderate	Moderate[1]	Moderate[1]	None-Slight	Moderate[B,1]	Severe[D,1]	Moderate[D,6]
	HdD	12-18%	0.5-2.0	Severe	Moderate	Severe[1]	Severe[1]	Moderate[1]	Severe[B,1]	Severe[D,1]	Severe[D,6,1]
Hayden Clay Loam	HaD3	12-18%	0.3-2.0	Severe	Mod-High	Severe[1]	Severe[1]	Moderate[1]	Severe[B,1]	Severe[D,1]	Severe[D,6,1]
	HiE	18-25%	0.3-2.0	Severe	Mod-High	Severe[1]	Severe[1,2]	Severe[1,2]	Severe[B,1]	Severe[D,1]	Sev-V Sv[D,1]
	HiF	25-35%	O.3-2.0	Severe	Mod-High	Very Sv[1]	Very Sv[1,2]	Very Sv[1,2]	Very Sv[3,1]	Severe[D,1]	Very Sv[D,1]
	HnE3	18-25%	0.3-2.0	Severe	Mod-High	Very Sv[1]	Very Sv[1,2]	Very Sv[1,2]	Very Sv[3,1]	Severe[D,1]	Sev-V Sv[D,1]
Marsh	Mh	0- 1%	No Data	Slight[D]	No Data	Very Sv[9,7]	Very Sv[9,7]	Very Sv[9,7]	Very Sv[B,9,7]	Severe[D,7]	Very Sv[D,1,9]
Milaca	MiB2	2- 6%	Variable	Slight	High	None-Slight	Moderate[2]	Moderate[2]	None-Slight	Moderate[D]	Moderate[D,6]
Peat and Muck	PA	0- 1%	Variable	Slight[D]	High[D]	Very Sv[9,7]	Very Sv[9,7]	Very Sv[9,7]	Very Sv[B,9,7]	Severe[D,7]	Very Sv[D,4,9]
	Pm	0- 1%	Variable	Slight[D]	High[D]	Very Sv[9,7]	Very Sv[9,7]	Very Sv[9,7]	Very Sv[B,9,7]	Severe[D,7]	Very Sv[D,4,9]

Soils Map


STATUTORY BOUNDARY
LAKE MARIAN
BJORKLUND LAKE
SLOUGH LAKE
WEST LAKE
ANDERSON HILL
PARK ENTRANCE
SERVICE AREA
STATUTORY BOUNDARY
Scale in Feet
0 300 600 1200

Soils Map Key



Soil Type

See Soils Characteristics/Suitability Chart, p. 36 for identification of soil type.

Percent of Slope

A - 0-2
B - 2-6
C - 6-12
D - 12-18
E - 18-25
F - 25-35

Erosion Potential

1 - None
2 - Slight
3 - Severe

Management

Objectives:

To correct present soil erosion in the park

To prevent future erosion

- Specific Management

The management of the soils in Lake Maria State Park is extremely important because of their fragile nature. The Emmert-Milaca complexes and Hayden fine sandy loams which have less than a 12% slope are best suited for development. A large block of Emmert-Milaca occupies the southeast corner of the park. There are other small areas scattered throughout the park. The Hayden fine, sandy loam is found in small areas along the park boundary. Most park development will be located on these soils, but trails and small picnic areas may be developed on less suitable soils. Detailed site analysis will be completed before any facility is built.

Due to the lack of existing development, there are few soil problems in Lake Maria now. However, there is some erosion on existing trails. In some places the solution is simply to reroute the trail, but there are other places where this will not work and measures such as waterbars and/or surfacing must be implemented. Two places in particular where this kind of work is necessary are the hiking trail just east of the present group camp and the slopes on the old jeep trail. There are numerous low areas where some form of trail work (corduroy, culverts, or bridges) may become necessary if large numbers of people use the trails during the spring and summer months.

The amount of use during the spring and summer will determine the necessary amount of additional trail work. Correct alignment and only a small increase in use will require little or no trail work. A large increase, however, will lead to excessive wear on some trails and surfacing will become necessary. See Trails, pp. 78 -80 for further discussion.

The existing campground is located on unsuitable soils, resulting in serious erosion problems. See Camping Section, pp.72-73 for specific management recommendations.

Source:

Soil Survey of Wright County, U. S. Soil Conservation Service, 1974.

VEGETATION

Introduction

Before any management of a park is attempted, an inventory must be taken so that an account of the assets and attributes of a unit is available. The success of a management plan is then based upon the improvements that have taken place.

Inventory

To rapidly inventory the vegetation component of a park, a system was devised which would not only categorize vegetation, but would also recognize those species of wildlife normally associated with these plant communities. The system used to describe vegetation/wildlife associations is called the "Ecological Community System." In designing the system, several factors were considered. These factors included existing land use patterns, soil, moisture, plant species composition, physical appearance (i.e., grassy, brushy, forested, bare), and the habitat choices of the various species of wildlife commonly found in Minnesota.

Original Vegetation

The original vegetation of the park was generally big woods and northern hardwoods.

Existing Ecological Communities

The predominant ecological communities in the park are big woods and northern hardwoods. Other major communities are: marshes, alder-willow swamps, wet meadows, old fields, and open pastures.

Major Ecological Communities

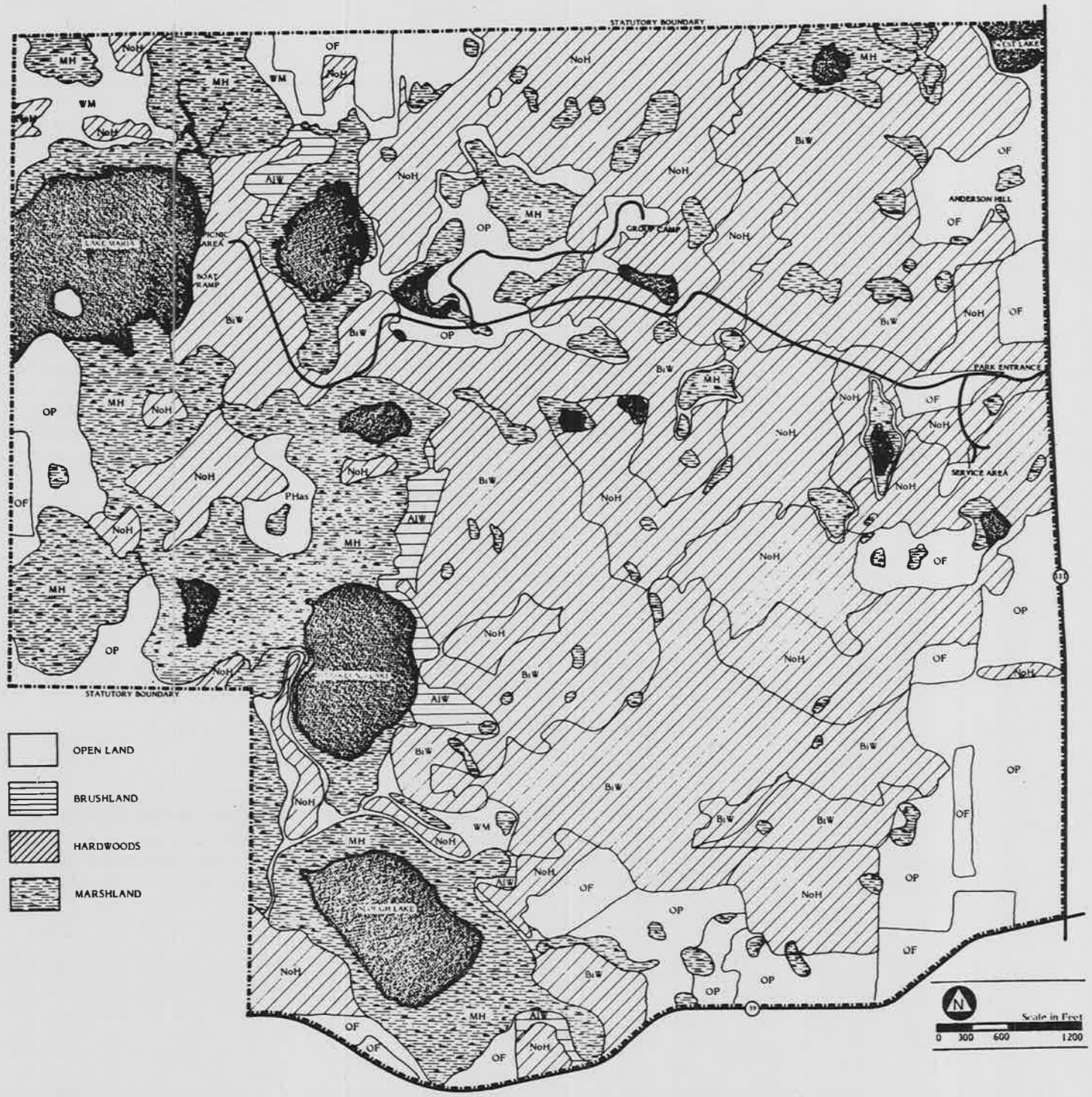
Big Woods

Big woods communities are characterized by tree species such as sugar maple, basswood, red oak, bur oak, and butternut. The presence of a rich, varied ground layer with rapid decomposition of the leaf litter indicates a healthy stand. Blue grass, sedge, and prickly ash species in the stands suggest that the area had been grazed at one time. The stands are dense and deep with scattered infrequent openings.

Dominant Tree Species

Sugar maple
Basswood
Red oak

Existing Vegetation Map



MH	Marsh
NoH	Northern Hardwoods
WM	Wet Meadow
OF	Old Field
AlW	Alder Willow
BiW	Big Woods
OP	Old Pasture
PHas	Pioneer Hardwood/aspen

Dominant Shrub Species

Ironwood
Prickly ash
Beaked hazel
Raspberry

Dominant Ground Layer Species

Fern sp.
Solomon's seal
Large flowered trillium
Wood horsetail

Northern Hardwoods

Northern hardwood communities are characterized primarily by sugar maple, but associates such as northern pin oak, basswood, green ash, and elm are also predominant in some areas. Scattered small clumps and individual white pine also occur.

Dominant Tree Species

Sugar maple
Basswood
Red oak
Birch
Aspen

Dominant Shrub Species

Prickly ash
Beaked hazel
Raspberry
Speckled alder

Dominant Ground Layer Species

Fern sp.
Solomon's seal
Large flowered trillium
Wood horsetail

Toxic Plant Species

Poison ivy

Scenic Communities

Landscapes with the greatest diversity tend to have the highest scenic value. The rolling topography, woodland pot-holes, marshes, and lakes combine with the varied vegetative communities to create a landscape that is highly scenic and has a high recreational value. The deciduous forest and marsh communities have a constantly changing character that provides visual pleasure and interest throughout the year.

Rare or Endangered Species

None known, more research needed.

Diseased, Overmature Stands, and Special Problems

Vegetation in the picnic area is being impacted because of the heavy human use of the area.

Some problems that are common in heavy use areas are: soil compaction, breaking and cutting for firewood, and nails in the trees. Elm trees throughout the park are suffering from Dutch elm disease.

Management

Objectives:

To restore some areas to native prairie and wet meadows

To perpetuate the hardwood communities, particularly the big woods

To enhance habitats for wildlife

• Specific Management

Lake Maria has eight different vegetative communities. Half of the park's vegetation is made up of the two hardwood communities - big woods and northern hardwoods. Preservation of these communities was one of the reasons for the park's establishment. Nearly one third of the park is wetland communities (marshes, potholes, and lakes). The remainder is in some form of grassland, except for a few acres each of alder-willow and aspen.

This management plan is primarily concerned with the hardwood, wetland, and prairie communities. To correctly manage hardwoods and prairies, research must be completed in the park. This plan recommends that research be completed on these communities and the management directed from the result. In the table that follows, communities 2, 3, 4, 7, and 8 will be researched.

The table describes the recommended management for the eight communities. The cost figures are computed for the most expensive method of completing the technique, however, less expensive methods are encouraged if possible. The figures are based on 1976 dollars and inflation will have to be written into each biennium's budget. The timetable is also based on the most expensive methods. Cutting may be done ahead of schedule, with the approval of the director of the Division of Parks and Recreation, provided that no additional funds are required.

An outbreak of oak wilt in Lake Maria would have a devasting effect. The disease strikes primarily red oak which is one of the dominant species in the park. The district forester and park manager should conduct regular field checks for the disease. If the disease is found in an area which is scheduled for timber removal as a management technique, diseased oak should be the species cut. This recommendation should be implemented only if the disease is in a stage during which cutting is an effective control method. If an outbreak is discovered in an area recommended for passive management for 10 years, the trees should be treated by approved chemical applications.

There are not many elm in the park, therefore, Dutch elm disease does not pose a serious threat. In fact, dead elm can be left standing for roosts and possible nesting sites for raptors and wood ducks.

LAKE MARIA STATE PARK VEGETATION MANAGEMENT PLAN

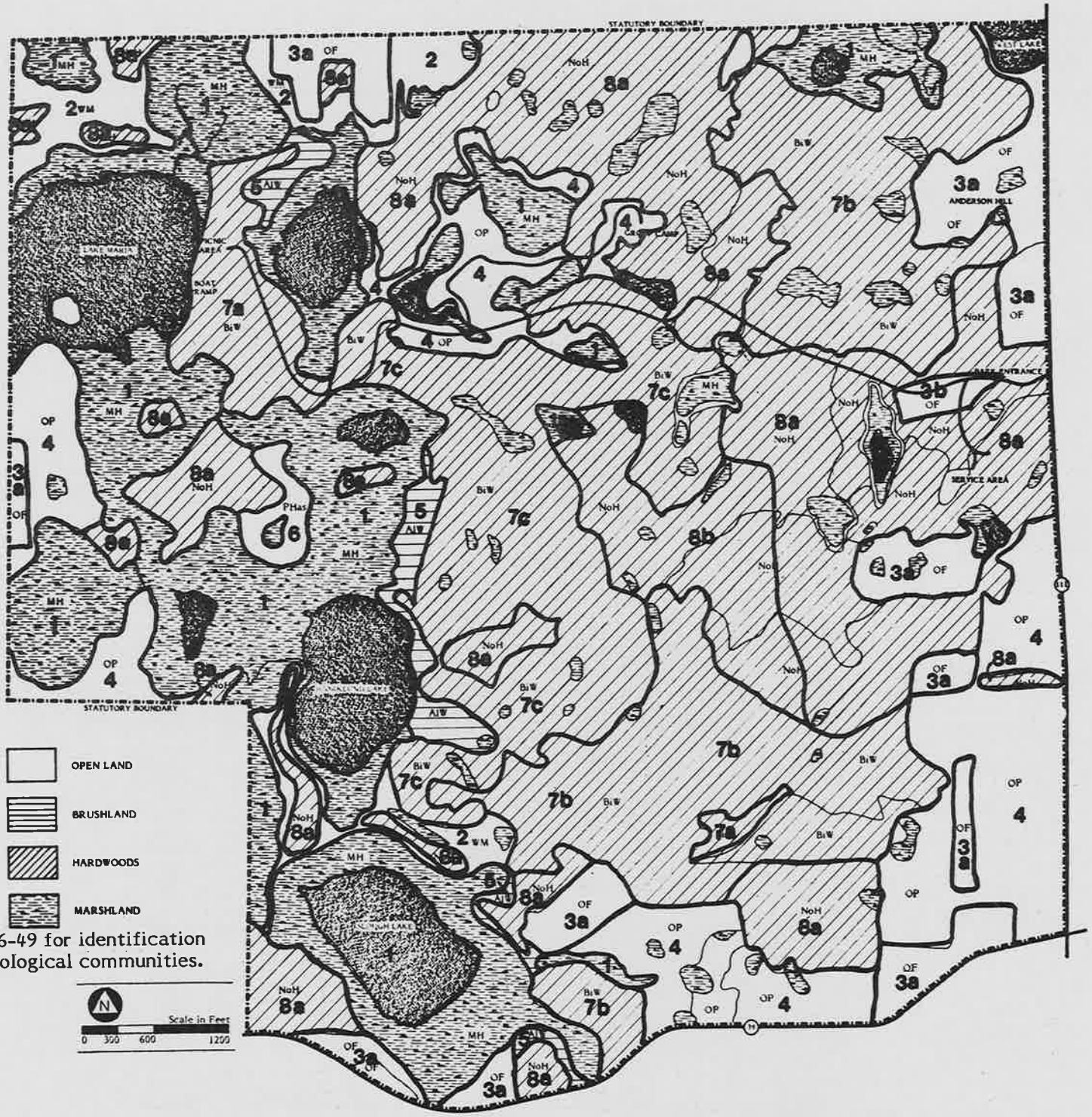
Map Code	Ecological Community	Management Practice	Management	Cost
1	Marsh (MH) 279 acres	Passive Management*	No active management except fire suppression. In the event of wild fire, small marsh areas surroundde by wet meadows, old fields, or old pastures will be allowed to burn.	None
2	Wet Meadow (WM) 41 acres	Wet Meadow Management	Starting in 1980, burn all the wet meadow areas in the early spring for two consecutive years to cut back any invading woody material and thereafter every three or four years, to maintain non-woody vegetation. Research will be carried out on some of these areas to determine if burning is all that is necessary to maintain the wet meadow.	$60/acre $2,460/year $7,380/10 years
3a	Old Field (OF) 48 acres	Prairie Management	Starting in 1978,burn for two consecutive years during the early spring to cut back invading woody material and thereafter every three or four years to enhance prairie plants and related woody plants. Special care should be exercised when burning the old field adjacent to the proposed trail/interpretive center. Research will be carried out on some of these fields to determine what should be done to reestablish prairie plants.	$60/acre $2,880/year $11,520/10 years
3b	Old Field (OF) 4 acres	Native Vegetation	A detailed planting plan should be completed for this area as part of the new contact station. The plan should cover the entire four acres.	Costs covered in the Recreation Section

4	Old Pasture (OP) 131 acres	Prairie Management	Starting in 1980, burn for two consecutive years during the spring to cut back woody plants and thereafter every three or four years, to maintain non-woody vegetation. Research should be carried out on the old pastures in the south, southeast, and north central parts of the park to determine if burning will reestablish the native prairie. If not, some planting should be carried out.	Burn $60/acre $7,860/year $23,580/10 years Planting $2,000/10 years (if needed)
5	Alder-Willow (AlW) 18 acres	Maintain	No active management, except fire suppression. Natural succession will continue, but in this case, the alder-willow should maintain itself. The beaver activity which is common in this community helps maintain the alder-willow stands.	None
6	Pioneer Hardwood/aspen (PHas) 7 acres	Maintain	This stand is on an island which cannot be reached without disturbing the marsh areas surrounding it, so no active management is recommended. However, beaver activity will be encouraged keeping the stand in its present condition.	None
7a	Big Woods (BiW) 29 acres	Maintain	No active management except fire suppression. The stand is young and will mature. Only sanitation cuts should be made.	None
7b	Big Woods (BiW) 175 acres	Timber Removal Reforestation	These stands are predominantly oak, 9-15" dbh, with only a brush understory. To prepetuate the stand, oak regeneration must be enhanced. Various methods of oak regeneration have been tried with varying levels of success. This plan recommends one method with an accompanying research study. The method is called shelterwood cutting and involves two spaced cuts with a site disturbance in between. The first step is to remove all the undesirable species including the larger brush and some of the litter. The second step is to burn the site removing the remaining brush and some of the litter. The third step is to cut the seed trees. Starting in the winter of 1980, the district forester should select one 2-acre and one 1-acre tract from the two larger stands (and one 1-acre tract from the small stand).	Step 1 $600/acre $4,200/year $21,000/10 years Step 2 $60/acre $420/year $2,100/10 years Step 3 $500/acre $3,500/year $10,500/10 years

			The tracts should be irregular in shape, and may be cut right along a trail if the area needs rehabilitation. The trees and brush should be cut as close to the ground as possible and all but the smaller brush will be removed. A few brush piles will be built on the fringes of the cut for small mammal habitat. The following spring, the tracts should be burned or mechanically disturbed (brush disc). Since great care must be taken if mechanical disturbance is used because of possible soil erosion, burning is recommended for nearly all tracts. During the winters of 1981-1984 approximately five more tracts should be selected each year for Steps 1 and 2. The forester and park manager may discontinue the cutting if there are no areas that absolutely need it. Starting in the winter of 1985 Step 3 should be carried out on the first tracts cut in 1980. Step 3 consists of cutting the seed trees left after the first cut. These shall be removed except for a few logs per tract, (these should be left for grouse drumming logs). The cutting in Steps 1 and 3 can be carried out by timber sales, firewood permits, or by park workers. The forester and park manager must enforce strict controls if timber sales or firewood trees are cut to ensure the area is cleaned up after the cut is made. If, after five years, the oak are not regenerated well from Step 1 and 2, the stands should be artificially planted in the same rotation as for Step 1, but in a random fashion. This process will perpetuate the oak stands and will provide temporary wildlife openings.	Planting $100/acre $3,500/year $10,500/10 years
7c	Big Woods (BiW) 132 acres	Passive Management* & Timber Removal to Create Openings	Fire suppression is the only active management recommended for the majority of this stand. However, a few wildlife openings should be created. The forester should select two 2-acre tracts where the overstory oaks are deteriorating and there is no understory. Once selected, the same approach should be used as in 7b, except that the tracts will be cut in 1983 and 1987.	Step 1 $600/acre $2,400/year $4,800/10 years Step 2 $60/acre $240/year $480/10 years

8a	Northern Hardwoods (NoH) 288 acres	Passive Management*	Fire suppression is the only active management recommended for this stand. Sanitation cutting is the only cutting allowed.	None
8b	Northern Hardwoods (NoH) 42 acres	Timber Removal/ Maintain Openings	Create 5 wildlife openings 1 to 2 acres in size in areas selected by the district forester. These openings should be located where a natural opening already exists or in an area which has poor quality vegetation. Timber should be cut by park workers or through the issuance of firewood permits. A few large logs should be left on the ground for grouse drumming logs. Dead trees should be left for small animal habitat. An approved chemical will be used to remove the brush and retard the woody growth after the openings are created.	Cutting $400/acre $800/1980 $1,200/1982 $2,000/10 years Chemical $5/biennium $20/Total project cost
7-8	Big Woods (BiW) Northern Hardwoods (NoH)	Wood Duck and Raptor Management	To encourage wood ducks and raptors, most or all the large dead trees adjacent to the marshes and woodland potholes and some of the trees adjacent to the old fields and pastures will be left standing. If there are no dead trees, some should be girdled. These trees should be well away from any trails to eliminate any possible hazard.	No appreciable cost
7-8	Big Woods (BiW) Northern Hardwoods (NoH)	Oak Wilt Management	Diseased oak stands will be chemically treated in the event of an outbreak of oak wilt (see p. 44 for further discussion).	Chemical $240/biennium $1,200/Total project cost
1-8	All types	Vegetation Research	Research on vegetation management should be carried out, particularly on the old fields, pastures, wet meadows, and the hardwoods. This research may be carried out by the University of Minnesota, St. Cloud State University, or an independent firm.	$5,000/78-79 $7,500/80-81 $7,500/82-83 $20,000/Total project cost

*Passive Management as used in this plan is defined as: management by allowing natural succession to continue with fire suppression as the only active management technique.



See pp. 46-49 for identification of the ecological communities.

WILDLIFE

Inventory

One of the most intriguing assets of any park is its resident wildlife. Many of the species are commonplace but unnoticeable because of their elusive or secretive behavior. For many visitors, the mere awareness of the presence of wildlife is all that is needed to change a dull, uneventful walk through the brush into a challenging, refreshing stroll through nature's handiwork.

In order to provide such an experience, detailed inventories of park wildlife are needed. This will enable park personnel to manage and protect habitat to attract certain species and retain existing species.

The following wildlife inventory was based on checklists and reports submitted to us by local residents, birders, naturalists, area game managers, and park managers. The list is not all inclusive and will continue to be revised and updated as new data is reported. Therefore, additional detailed studies will need to be conducted on those areas where management needs for wildlife have been identified.

Lake Maria State Park, with its big woods, northern hardwoods, bottomland hardwoods, and numerous marshes, potholes and lakes, provides excellent habitat for a wide variety of wildlife.

According to past records, 205 bird species inhabit or visit the Lake Maria area. Twenty-three mammal species and 10 reptile and amphibian species also inhabit the park.

Certain wildlife species occurring within a park are especially noteworthy because special precautions are required for their management. These wildlife species have been divided into four categories:

Endangered, Threatened, or Rare Species

Species of Special Interest

Troublesome Species

Species Sensitive to Humans

There are no known species in this park which belong in the Endangered, Threatened, or Rare Species category.

Species of Special Interest

Species within this group include those which are uncommon or locally distributed in Minnesota and are not presently threatened or endangered, but which might become so. Also included are those species which presently are not in any particular difficulty but should be closely watched because they have unusual or special values, because they are of special public interest, or because their habitat is especially vulnerable. Special habitat management techniques may be required.

Birds

Seasonal Residents

Common Egret
Common Loon
Great Blue Heron
Marsh Hawk

Migrants

Common Tern
Franklin's Gull
Cooper's Hawk
Northern Bald Eagle
Osprey

Permanent Residents

Pileated Woodpecker

Troublesome Species

Troublesome species include those species of wildlife which as individuals or populations might become nuisances to either the natural resources of a park, park property, or park visitors.

Mammals	Potential Problems
Beaver	Flooding, vegetation destruction
White-tailed deer	Vegetation destruction

Raccoon	Nuisance
Striped Skunk	Nuisance

Species Sensitive to Humans

Species listed within this group are those which are unusually sensitive to disturbance by human activity. Disturbance during one season or another may result in nest or den abandonment, a decrease in territorial size, or a shift in territorial movement. Such disturbance might be detrimental to the survival of the species in a given area, or may have effects over a much larger area.

Birds

Screech Owl
Great Horned Owl
Snowy Owl
Short-eared Owl
Virginia Rail
Sora Rail
Least Bittern

Mammals

Red Fox

Management

Objectives:

To reestablish and increase the populations of waterfowl and fur-bearing mammals on Maria Lake

To reestablish species that were once found in this area

- Specific Management

The inventory revealed that 205 bird species, 23 mammal species, and 10 reptile species inhabit or visit Lake Maria. Proper management of habitat within the park combined with the continuing loss of habitat in the surrounding area should increase the number of species within the park. Care must be taken to ensure that maximum populations are reached without overpopulation. Habitat manipulation will be the major wildlife management practice. (See Vegetation Section).

DEFINITIONS

Abundant - Trained observer may see several individuals in one day during the residency period of the species.

Common - Trained observer may see one or more individuals in one day.

Uncommon - Trained observer may see one individual in the course of one summer.

Rare - Species normally not observed by the trained observer.

Endangered - Listed in the Federal Register as a threatened or endangered species.

Unknown - Abundance of an individual species in a given park has not been determined.

Permanent Resident - Resident in the park area on a year-round basis.

Summer Resident - Only found in the park area during the summer months, presence may or may not indicate breeding activity.

Migrant - Normally found in the park area only during the spring or fall migratory season.

Winter Visitant - Normally found in the park area only during the winter months.

Uncertain - Seasonal occurrence status is not known for the species in the park area.

Seasonal Inactive - Species is seasonally inactive in the park area, may enter dormancy, hibernation, or aestivation.

FOUND IN PARK	SPECIES	RELATIVE ABUNDANCE: ABUNDANT	COMMON	UNCOMMON	RARE	ENDANGERED	UNKNOWN	PERMANENT RESIDENT	SUMMER RESIDENT	MIGRANT	SEASONAL OCCURRENCE: WINTER VISITANT	SEASONALLY INACTIVE	UNCERTAIN
●	Short-billed Dowitcher						●			●			
●	Long-billed Dowitcher						●			●			
●	Stilt Sandpiper						●			●			
	Buff-breasted Sandpiper												
	Marbled Godwit												
	Hudsonian Godwit												
	American Avocet												
●	Wilson's Phalarope						●			●			
●	Northern Phalarope						●			●			
	Parasitic Jaeger												
	GlaucousGull												
●	Herring Gull						●			●			
●	Ring-billed Gull						●			●			
●	Franklin's Gull						●			●			
●	Bonaparte's Gull						●			●			
●	Forster's Tern						●		●				
●	Common Tern						●			●			
●	Caspian Tern						●			●			
●	Black Tern						●		●				
●	Rock Dove						●	●					
●	Mourning Dove						●		●				
●	Yellow-billed Cuckoo						●		●				
●	Black-billed Cuckoo						●		●				
●	Screech Owl						●			●			
●	Great Horned Owl						●	●					
●	Snowy Owl						●			●			
	Hawk-Owl												
	Burrowing Owl												
●	Barred Owl		●					●					
	Great Gray Owl												
●	Long-eared Owl		●					●					
●	Short-eared Owl						●			●			
●	Saw-whet Owl						●	●					
●	Whip-poor-will						●						●
●	Common Nighthawk						●			●			
●	Chimney Swift						●			●			
●	Ruby-throated Hummingbird						●		●				
●	Belted Kingfisher						●		●				
●	Common Flicker						●		●				
●	Pileated Woodpecker						●	●					
●	Red-bellied Woodpecker						●	●					
●	Red-headed Woodpecker						●		●				
●	Yellow-bellied Sapsucker						●			●			
●	Hairy Woodpecker						●	●					
●	Downy Woodpecker						●	●					
	Black-backed 3-toed Woodpecker												
	Northern 3-toed Woodpecker												
●	Eastern Kingbird						●		●				
●	Western Kingbird						●		●				
●	Great Crested Flycatcher						●		●				
●	Eastern Phoebe						●		●				

FOUND IN PARK	SPECIES	RELATIVE ABUNDANCE: ABUNDANT	COMMON	UNCOMMON	RARE	ENDANGERED	UNKNOWN	PERMANENT RESIDENT	SUMMER RESIDENT	MIGRANT	SEASONAL OCCURRENCE: WINTER VISITANT	SEASONALLY INACTIVE	UNCERTAIN
●	Yellow-bellied Flycatcher						●			●			
	Acadian Flycatcher												
	Willow Flycatcher												
●	Alder Flycatcher						●			●			
●	Least Flycatcher						●		●				
●	Eastern Wood Pewee						●		●				
●	Olive-sided Flycatcher						●			●			
●	Horned Lark						●		●				
●	Tree Swallow						●		●				
●	Bank Swallow						●		●				
●	Rough-winged Swallow						●			●			
●	Barn Swallow						●		●				
	Cliff Swallow												
●	Purple Martin						●		●				
	Gray Jay												
●	Blue Jay						●	●					
	Black-billed Magpie												
	Common Raven												
●	Common Crow						●	●					
●	Black-capped Chickadee						●	●					
	Boreal Chickadee												
●	Tufted Titmouse			●					●				
●	White-breasted Nuthatch						●	●					
●	Red-breasted Nuthatch						●			●			
●	Brown Creeper						●			●			
●	House Wren						●		●				
●	Winter Wren						●			●			
●	Long-billed Marsh Wren						●		●				
●	Short-billed Marsh Wren						●		●				
	Mockingbird												
●	Gray Catbird						●		●				
●	Brown Thrasher						●		●				
●	American Robin						●		●				
	Varied Thrush												
●	Wood Thrush						●		●				
●	Hermit Thrush						●			●			
●	Swainson's Thrush						●			●			
●	Gray-cheeked Thrush						●			●			
●	Veery						●		●				
●	Eastern Bluebird						●		●				
●	Blue-gray Gnatcatcher						●			●			
●	Golden-crowned Kinglet						●			●			
●	Ruby-crowned Kinglet						●			●			
	Water Pipit												
	Sprague's Pipit												
	Bohemian Waxwing												
●	Cedar Waxwing						●		●				
●	Northern Shrike						●			●			
●	Loggerhead Shrike						●		●				
●	Starling						●	●					
	Bell's Vireo												

FOUND IN PARK	SPECIES	RELATIVE ABUNDANCE: ABUNDANT	COMMON	UNCOMMON	RARE	ENDANGERED	UNKNOWN	PERMANENT RESIDENT	SUMMER RESIDENT	SEASONAL OCCURRENCE: MIGRANT	WINTER VISITANT	SEASONALLY INACTIVE	UNCERTAIN
●	Common Loon						●		●				
	Red-throated Loon												
●	Red-necked Grebe						●		●				
●	Horned Grebe						●			●			
	Eared Grebe												
	Western Grebe												
●	Pied-billed Grebe						●			●			
	White Pelican												
●	Double-crested Cormorant						●						●
●	Great Blue Heron						●		●				
●	Green Heron						●		●				
	Cattle Egret												
●	Great Egret						●		●				
●	Black-crowned Night Heron			●					●				
	Yellow-crowned Night Heron												
●	Least Bittern						●		●				
●	American Bittern						●		●				
●	Whistling Swan						●			●			
●	Canada Goose						●			●			
	White-fronted Goose												
●	Snow Goose						●			●			
●	Mallard						●		●				
●	Black Duck			●						●			
●	Gadwall						●			●			
●	Pintail						●			●			
●	Green-winged Teal						●			●			
●	Blue-winged Teal						●		●				
●	American Wigeon						●			●			
●	Northern Shoveler						●			●			
●	Wood Duck						●		●				
●	Redhead						●			●			
●	Ring-necked Duck						●			●			
●	Canvasback						●			●			
	Greater Scaup												
●	Lesser Scaup						●			●			
●	Common Goldeneye						●			●			
●	Bufflehead						●			●			
	Oldsquaw												
	Harlequin Duck												
	White-winged Scoter												
	Surf Scoter												
	Black Scoter												
●	Ruddy Duck						●			●			
●	Hooded Merganser						●			●			
●	Common Merganser						●			●			
●	Red-breasted Merganser						●			●			
	Turkey Vulture												
●	Goshawk				●			●					
●	Sharp-shinned Hawk						●			●			
●	Cooper's Hawk						●			●			
●	Red-tailed Hawk						●	●					

FOUND IN PARK	SPECIES	RELATIVE ABUNDANCE: ABUNDANT	COMMON	UNCOMMON	RARE	ENDANGERED	UNKNOWN	PERMANENT RESIDENT	SUMMER RESIDENT	SEASONAL OCCURRENCE: MIGRANT	WINTER VISITANT	SEASONALLY INACTIVE	UNCERTAIN
●	Red-shouldered Hawk				●			●					
●	Broad-winged Hawk						●		●				
	Swainson's Hawk												
●	Rough-legged Hawk						●		●				
	Ferruginous Hawk												
	Golden Eagle												
●	Bald Eagle						●		●				
●	Marsh Hawk						●		●				
●	Osprey						●		●				
	Peregrine Falcon												
●	Merlin						●		●				
●	American Kestrel						●		●				
	Spruce Grouse												
●	Ruffed Grouse						●	●					
	Greater Prairie Chicken												
	Sharp-tailed Grouse												
●	Bobwhite		●					●					
●	Ring-necked Pheasant						●	●					
	Chukar												
●	Gray Partridge						●	●					
	Sandhill Crane												
	King Rail												
●	Virginia Rail						●		●				
●	Sora						●		●				
	Yellow Rail												
	Common Gallinule												
●	American Coot						●			●			
●	Semipalmated Plover						●			●			
	Piping Plover												
●	Killdeer						●		●				
	American Golden Plover												
	Black-bellied Plover												
	Ruddy Turnstone												
●	American Woodcock						●		●				
●	Common Snipe						●		●				
	Whimbrel												
	Upland Sandpiper												
●	Spotted Sandpiper						●			●			
●	Solitary Sandpiper						●			●			
●	Greater Yellowlegs						●			●			
●	Lesser Yellowlegs						●			●			
●	Willet						●			●			
	Red Knot												
●	Pectoral Sandpiper						●			●			
●	White-rumped Sandpiper						●			●			
●	Baird's Sandpiper						●			●			
●	Least Sandpiper						●			●			
●	Dunlin						●			●			
●	Semipalmated Sandpiper						●			●			
	Western Sandpiper												
●	Sanderling						●			●			

FOUND IN PARK	SPECIES	RELATIVE ABUNDANCE: ABUNDANT	COMMON	UNCOMMON	RARE	ENDANGERED	UNKNOWN	PERMANENT RESIDENT	SUMMER RESIDENT	SEASONAL OCCURRENCE: MIGRANT	WINTER VISITANT	SEASONALLY INACTIVE	UNCERTAIN
●	Yellow-throated Vireo						●		●				
●	Solitary Vireo						●			●			
●	Red-eyed Vireo						●		●				
●	Philadelphia Vireo						●			●			
●	Warbling Vireo						●		●				
●	Black-and-white Warbler						●			●			
	Prothonotary Warbler												
●	Golden-winged Warbler						●			●			
	Blue-winged Warbler												
●	Tennessee Warbler						●			●			
●	Orange-crowned Warbler						●			●			
●	Nashville Warbler						●			●			
●	Northern Parula						●			●			
●	Yellow Warbler						●		●				
●	Magnolia Warbler						●			●			
●	Cape May Warbler						●			●			
●	Black-throated Blue Warbler						●			●			
●	Yellow-rumped Warbler						●			●			
●	Black-throated Green Warbler						●			●			
●	Cerulean Warbler						●			●			
●	Blackburnian Warbler						●			●			
●	Chestnut-sided Warbler						●			●			
●	Bay-brested Warbler						●			●			
●	Blackpoll Warbler						●			●			
●	Pine Warbler						●			●			
●	Palm Warbler						●			●			
●	Ovenbird						●			●			
●	Northern Waterthrush						●			●			
●	Louisiana Waterthrush						●			●			
●	Connecticut Warbler						●			●			
●	Mourning Warbler						●			●			
●	Common Yellowthroat						●		●				
●	Wilson's Warbler						●			●			
●	Canada Warbler						●			●			
●	American Redstart						●		●				
●	House Sparrow						●	●					
●	Bobolink						●		●				
●	Eastern Meadowlark						●		●				
●	Western Meadowlark						●		●				
●	Yellow-headed Blackbird						●		●				
●	Red-winged Blackbird						●		●				
	Orchard Oriole												
●	Northern Oriole						●		●				
●	Rusty Blackbird						●			●			
●	Brewer's Blackbird						●			●			
●	Common Grackle						●		●				
●	Brown-headed Cowbird						●		●				
●	Scarlet Tanager						●		●				
●	Cardinal						●	●					
●	Rose-breasted Grosbeak						●		●				
	Blue Grosbeak												

FOUND IN PARK	SPECIES	RELATIVE ABUNDANCE: ABUNDANT	COMMON	UNCOMMON	RARE	ENDANGERED	UNKNOWN	PERMANENT RESIDENT	SUMMER RESIDENT	SEASONAL OCCURRENCE: MIGRANT	WINTER VISITANT	SEASONALLY INACTIVE	UNCERTAIN
●	Indigo Bunting						●		●				
●	Dickcissel						●		●				
●	Evening Grosbeak						●			●			
●	Purple Finch						●			●			
	Pine Grosbeak												
●	Hoary Redpoll						●			●			
●	Common Redpoll						●			●			
●	Pine Siskin						●			●			
●	American Goldfinch						●	●					
	Red Crossbill												
	White-winged Crossbill												
●	Rufous-sided Towhee						●			●			
	Lark Bunting												
●	Savannah Sparrow						●		●				
●	Grasshopper Sparrow						●			●			
	Henslow's Sparrow												
●	Le Conte's Sparrow						●			●			
	Sharp-tailed Sparrow												
●	Vesper Sparrow						●		●				
	Lark Sparrow												
●	Dark-eyed Junco						●			●			
●	Tree Sparrow						●			●			
●	Chipping Sparrow						●		●				
●	Clay-colored Sparrow						●		●				
●	Field Sparrow						●			●			
●	Harris' Sparrow						●			●			
●	White-crowned Sparrow						●			●			
●	White-throated Sparrow						●			●			
●	Fox Sparrow						●			●			
●	Lincoln's Sparrow						●			●			
●	Swamp Sparrow						●		●				
●	Song Sparrow						●		●				
	Lapland Longspur												
	Smith's Longspur												
	Chestnut-collared Longspur												
	Snow Bunting												

FOUND IN PARK	SPECIES	RELATIVE ABUNDANCE: ABUNDANT	COMMON	UNCOMMON	RARE	ENDANGERED	UNKNOWN	SEASONAL OCCURRENCE: PERMANENT RESIDENT	SUMMER RESIDENT	MIGRANT	WINTER VISITANT	SEASONALLY INACTIVE	UNCERTAIN
	Opossum												
●	Eastern Mole		●					●					
	Star-nose Mole												
	Cinerous Shrew												
	Richardson Shrew												
	Water Shrew												
	Pygmy Shrew												
	Least Shrew												
●	Short-tailed Shrew		●					●					
●	Little Brown Bat		●					●					
	Keen Myotis												
●	Big Brown Bat		●					●					
	Pipistrelle Bat												
	Silver-haired Bat												
	Red Bat												
	Hoary Bat												
●	White-tailed Jackrabbit				●			●					
	Snowshoe Hare												
●	Eastern Cottontail Rabbit					●	●						
●	Woodchuck					●	●					●	
	Richardson's Ground Squirrel												
●	Thirteen-lined Ground Squirrel	●				●	●					●	
	Franklin Ground Squirrel												
	Least Chipmunk												
●	Eastern Chipmunk	●					●						
●	Red Squirrel			●			●						
●	Eastern Gray Squirrel		●				●						
●	Fox Squirrel			●			●						
	Southern Flying Squirrel												
●	Northern Flying Squirrel			●			●						
●	Northern Pocket Gopher		●				●					●	
	Plains Pocket Gopher												
	Pocket Mouse												
●	Beaver					●	●					●	
	Western Harvest Mouse												
	Northern Grasshopper Mouse												
●	Prairie Deer Mouse					●	●						
●	Woodland Deer Mouse					●	●						
●	White-footed Mouse					●	●						
	Bog Lemming												
	Northern Bog Lemming												
	Boreal Redback Vole												
●	Meadow Vole					●	●						
	Rock Vole												
	Prairie Vole												
	Pine Vole												
●	Muskrat					●	●					●	
●	Norway Rat					●	●						
●	House Mouse					●	●						
	Meadow Jumping Mouse												
	Woodland Jumping Mouse												

FOUND IN PARK	SPECIES	RELATIVE ABUNDANCE: ABUNDANT	COMMON	UNCOMMON	RARE	ENDANGERED	UNKNOWN	SEASONAL OCCURRENCE: PERMANENT RESIDENT	SUMMER RESIDENT	MIGRANT	WINTER VISITANT	SEASONALLY INACTIVE	UNCERTAIN
	Porcupine												
	Black Bear												
●	Raccoon		●				●	●				●	
	Fisher												
	Marten												
●	Short-tailed Weasel			●			●	●					
	Long-tailed Weasel												
●	Least Weasel						●	●					
●	Mink		●				●	●					
	River Otter												
	Spotted Skunk												
●	Striped Skunk		●				●	●				●	
●	Badger						●	●				●	
●	Red Fox		●					●					
	Gray Fox												
	Coyote												
	Timber Wolf												
	Canada Lynx												
	Bobcat												
●	White-tailed Deer		●					●					
	Moose												

FOUND IN PARK	SPECIES	RELATIVE ABUNDANCE									SEASONAL OCCURRENCE		
		ABUNDANT	COMMON	UNCOMMON	RARE	ENDANGERED	UNKNOWN	PERMANENT RESIDENT	SUMMER RESIDENT	MIGRANT	WINTER VISITANT	SEASONALLY INACTIVE	UNCERTAIN
●	Common Snapping Turtle	●					●				●		
	Wood Turtle												
	Map Turtle												
●	Western Painted Turtle	●					●				●		
	Blanding's Turtle												
	False Map Turtle												
	Western Spiny Softshell												
	Eastern Spiny Softshell												
	Northern Prairie Skink												
●	Five-lined Skink		●				●				●		
	Six-lined Racerunner												
	Northern Red-bellied Snake												
	Texas Brown Snake												
	Northern Water Snake												
	Eastern Plains Garter Snake												
●	Eastern Garter Snake	●					●				●		
	Red Sided Garter Snake												
	Plains Hognose Snake												
	Eastern Hognose Snake												
●	Blue Racer					●	●				●		
	Eastern Smooth Green Snake												
	Western Smooth Green Snake												
●	Bullsnake			●			●				●		
●	Western Fox Snake		●				●				●		
	Black Rat Snake												
	Eastern Milk Snake												
	Eastern Massasauga												
	Timber Rattlesnake												
	Mudpuppy												
	Central Newt												
	Jefferson Salamander												
	Eastern Tiger Salamander												
	Gray Tiger Salamander												
	Red-backed Salamander												
	Dakota Toad												
●	American Toad	●					●				●		
	Great Plains Toad												
	Northern Spring Peeper												
●	Eastern Gray Treefrog		●				●				●		
	Blanchard's Cricket Frog												
	Boreal Chorus Frog												
	Western Chorus Frog												
	Pickerel Frog												
	Mink Frog												
●	Northern Leopard Frog	●					●				●		
	Green Frog												
	Wood Frog												

There are two potentially significant wildlife problems in Lake Maria State Park -- beaver and white-tailed deer populations.

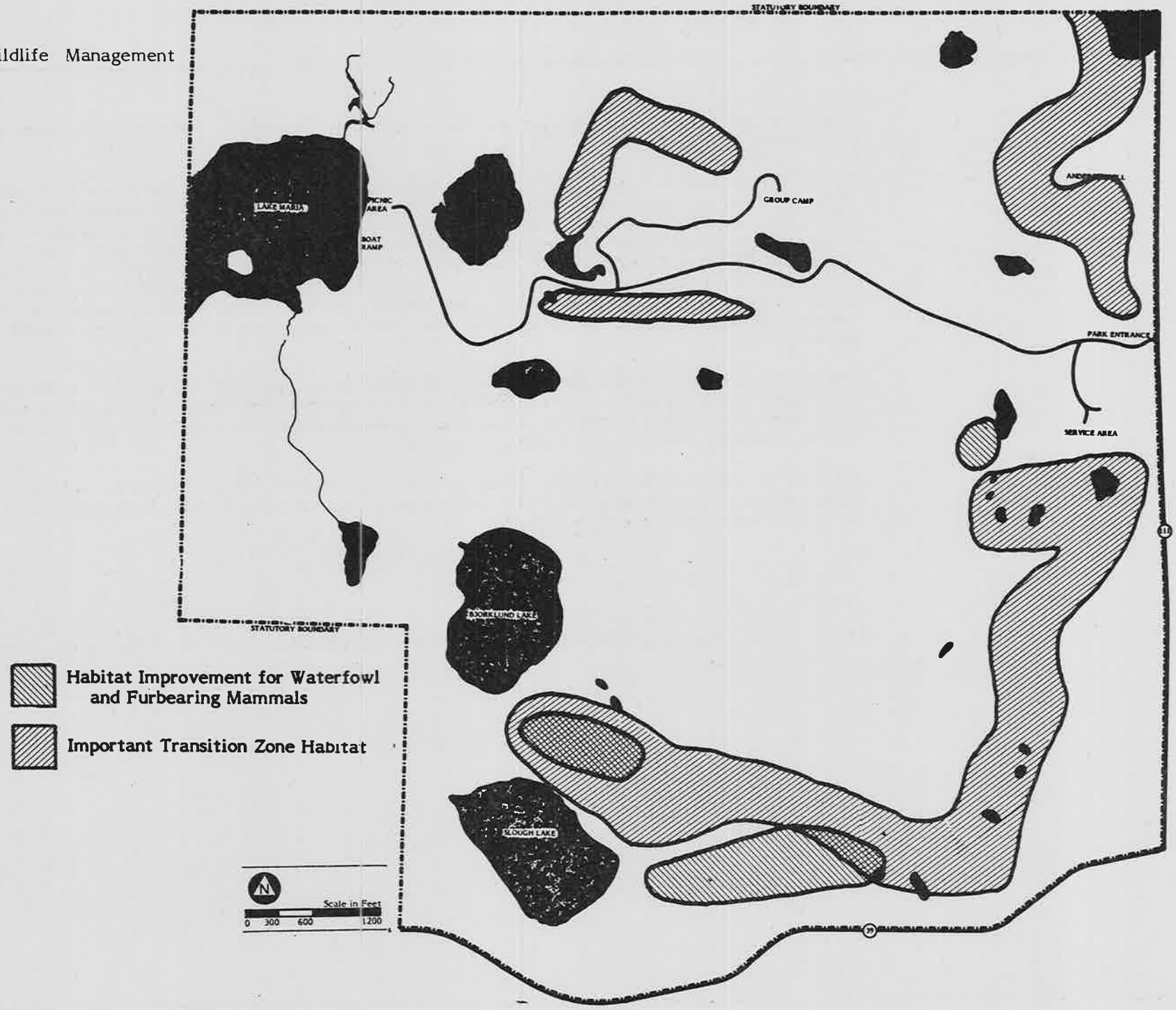
At this time, there is a sufficient amount of food and cover material for the beaver population. However, if the population should increase rapidly, some control measures will be needed. This would involve live trapping beaver and moving them to a suitable area. If there are no suitable areas nearby, the population may be reduced through kill trapping under the supervision of the DNR Division of Fish and Wildlife. The blocking of the drainage ditches discussed in the Surface Water Section may back up water into potholes, creating more habitat for beaver. With this increase in habitat, the population can increase without detriment to the resources of the park. The area wildlife manager should determine if, when, and how beaver population control methods should be implemented.

The second potential problem concerns the white-tailed deer. They seem to migrate to this park, particularly during the fall and winter months. If the area population should increase substantially, some form of population control may be needed. Again, the wildlife manager should recommend the kind of population control method to be implemented.

All trails and recreational facilities should be located a sufficient distance from valuable wildlife habitat areas. For example, trails should be screened or located a safe distance from all raptor nests because of the sensitivity of those species.

Source:

Moyle, John B., The Uncommon Ones, (St. Paul: Minnesota Department of Natural Resources, 1975).


STATUTORY BOUNDARY
PICNIC AREA
BOAT RAMP
GROUP CAMP
PARK ENTRANCE
SERVICE AREA
STATUTORY BOUNDARY
SLOUGH LAKE
Habitat Improvement for Waterfowl and Furbearing Mammals
Important Transition Zone Habitat
Scale in Feet
0 300 600 1200

HISTORIC AND PREHISTORIC SITES

Introduction

It is of primary importance to identify and document all historic and prehistoric sites in state parks. These sites, known or suspected, represent an irreplacable cultural resource and must be protected from activities which might adversely affect them. Once protected, further excavation, analysis, and interpretation can be carried out.

A literature search for prehistoric sites revealed site 21-WR-41 (Silver Lake Mounds), approximately 1/2 mile west of the park boundaries. Although there are no recorded prehistoric sites within the statutory boundaries, the park has not been systematically surveyed and appears to have archeological potential.

Research has also revealed historic homesteading activities occured within the park area in the late 1800's and early 1900's.

Management

Obejctive:

To identify, study, and preserve significant historic and prehistoric archeological sites within the park

- Specific Management

A systematic site survey should be done by the historical study. The initial phase should be a cursory field study to identify potential prehistoric and historic sites.

All proposed developments, except trails must not be constructed near known historic or prehistoric sites.

USER ANALYSIS

Introduction

Careful consideration must be given to future needs of the park user. Although a great deal of data exists concerning disparate elements of the subject, no comprehensive authoritative study on recreational tourism demand within Minnesota is currently available. Trends in travel patterns are now discernible, but estimates of the time period over which this demand develops and of its magnitude are only speculative at this time. Furthermore, published data largely documents what people have done in the past. Only if we assume that these trends will continue can conclusions be drawn. Obviously, this data is not (nor can it be) sensitive to any unpredictable technological changes or political events. For example, the oil embargo created an "energy crisis" overnight. This development and its implications have had a direct impact upon travel patterns.

There are two aspects of recreational demand. The first involves measurement of the amount and kind of recreational opportunities/facilities currently demanded by the public (e.g., the size of the park or the number of campsites). The second aspect involves an estimate of latent demand for recreational opportunities/facilities which would exist if citizens were given ample opportunity and adequate conditions to participate in an activity (e.g., the number of handicapped campers that would have utilized campsites if the architectural barriers to their use had been removed).

In the planning for the use and development of state parks, an attempt has been made to anticipate the recreational needs of the public by providing increased recreational opportunities while protecting the park's natural resources.

Regional Analysis

Lake Maria State Park is located in a region with a very high demand for recreational facilities. It is within 50 miles of both the St. Cloud and Twin Cities Metro areas. It is near Interstate 94 and T.H. 10, 25, and 55, providing easy access for the potential users in this area as well as the tourists traveling through Minnesota on I 94. Wright County, where the park is located, does not have a high percentage of tourist-travel expenditures (2.2% of gross sales) but with the opening of I 94 and the anticipated increase in growth of the county, this percentage should increase. Finally, the energy crisis of 1973-74 and the ever increasing costs of energy have, to some extent, encouraged people to vacation closer to home. With Lake Maria so centrally located, it is anticipated that this factor could increase park use.

On the other hand, there are many private facilities, as well as county and municipal parks, in the area. The latest available data shows that there are 3,018 campsites, 2,437 of which are modern, within this area. The Wright County park system has one park with 100 sites within eight miles of Lake Maria, and there are plans for more sites at other county parks. The YMCA owns approximately 1,400 acres four miles east of the park and has plans to build 200-300 campsites in 1984 for all levels of camping. It is not the intention of the Division of Parks and Recreation to compete with private enterprise. Instead, the park, with its natural beauty, interpretive potential, and walk-in campsites, will complement the other facilities in the area by providing visitors with alternative camping styles.

Another factor that enters the picture is the park's ability to handle a vehicular campground. The resources in Lake Maria simply cannot withstand the impact of a large campground without major modifications. Since these modifications would not be suitable in Lake Maria, the other facilities in the area will have to accommodate many of the campers and camping vehicles that come to the area.

The park will be able to handle fairly large numbers of trail users. Therefore, development priority will be given to trail facilities, such as trail/interpretive center, year-round interpretive programs, and a handicapped accessible trail for special populations. Other day-use activities will be available for those visitors who wish to picnic or canoe and/or fish on the lakes.

Even with the somewhat limited level of development, it is anticipated that use numbers may reach such proportions at some point in the future that the DNR may have to limit the number of users in order to protect the resources. Therefore, it is important for the manager and the other department personnel to closely observe the use patterns, numbers, and effects.

EXISTING DEVELOPMENT

Lake Maria State Park, being relatively new, has only a few facilities. The park has a combination picnic area-campground at the east end of Maria Lake, which has 12 campsites, a set of pit toilets, a well, and approximately 48 picnic tables. There is also a boat access for fishing and a canoe rental operation located on the lake.

In the north central portion of the park, a pioneer group camp has been developed. This facility contains a well and a set of pit toilets and will accommodate up to fifty people.

The only other developments are 7 miles of foot trails, 5.5 miles of cross-country ski trails, and 3 miles of snowmobile trails.

Basic utilities (see map, p.15) have been installed in Lake Maria State Park. Electrical lines come into the park in two places. An overhead line enters the park from the north along the old township road and then curves over to a pole just above the well in the picnic area. The other line services the manager's residence and the maintenance center. It enters the park off County Road 111 and stretches straight west to the manager's residence. The telephone line is buried. It enters the park at the entrance road and continues under the road to the service area.

As mentioned in the Underground Hydrology Section, there are three wells in Lake Maria State Park: one in the picnic area with an electric pump and pressure tank, another which is hand pumped in the group camp, and a third in the service area which provides water to the maintenance garage and the manager's residence.

There are two septic fields in the park. One handles sewage from the manager's residence, the other sewage from the maintenance garage.

Building Inventory

Name	Material	Size	Date Constructed	Condition
Office and Residence	Wood	22' x 44'	1966	Fair
Shop and Warehouse	Wood	30' x 50'	1974	Good
Pump House	Block	11' x 11'	1970	Good
Contact Station	Frame/Brick	20' x 24'	1977	Excellent

PROPOSED DEVELOPMENT

Introduction

Physical developments within state parks should be limited to those which are necessary and adequate for management and appropriate park use and enjoyment. Moreover, these necessary facilities should be provided only under carefully controlled safeguards against unregulated and indiscriminate use. To the highest practicable degree, location, design, and materials for facilities should be consistent with the objective of preserving the grandeur of the natural environment.

Administrative facilities, including roads and trails, are necessary in all parks for proper management. In most parks, public accommodations, such as campgrounds, are called for so that the public may have adequate opportunity to enjoy the unique environment set aside for them. Such appropriate facilities, if wisely located, designed, and constructed, can serve to protect park values by focusing and directing the uses of the park. For example, a road, a trail, or a formal campground can serve to channel use within specifically designated locations, thus preventing indiscriminate use of a larger area which could damage or destroy some of the very values for which the park has been dedicated and set aside.

Within economic and natural resource limitations, it is DNR's policy to provide recreational opportunities for all people within the state, including handicapped park users. However, topographic relief, severe soil conditions, or major physical obstructions in some units may require an extensive system of switchbacks , hard surfacing, or bridging which may destroy the natural atmosphere for which the unit was established. Therefore, the DNR will concentrate its efforts upon providing accessibility in parks which have the most potential for utilization by the handicapped.

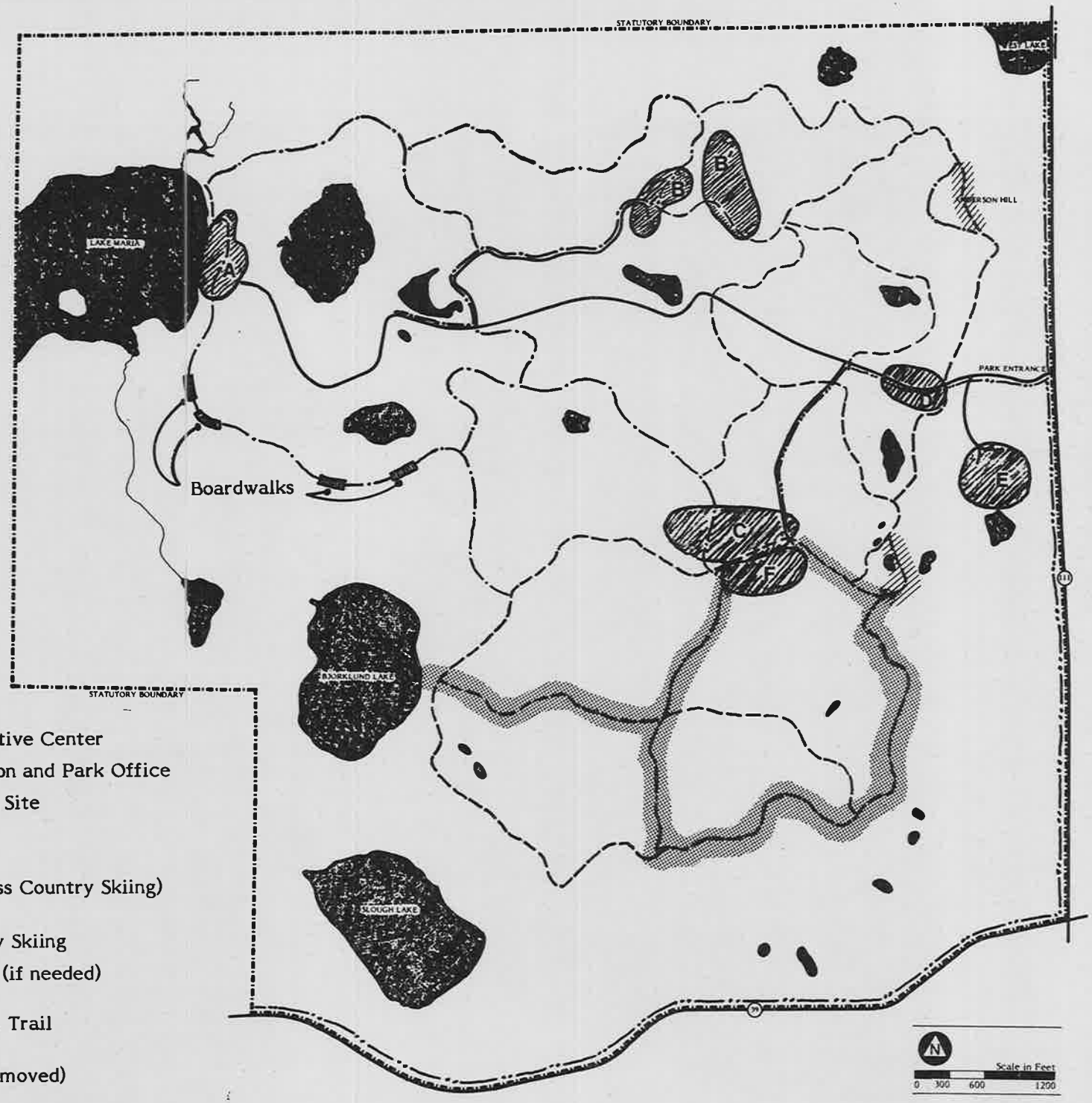
All future park buildings and facilities will be accessible and in compliance with the Minnesota State Building Code, Chapter 55. An attempt will be made to upgrade existing park facilities for better accessibility for all individuals including the handicapped, where it is not detrimental to the natural resources.

The attempt by the DNR to provide accessible recreational opportunities for all individuals includes plans to incorporate the needs and desires of the elderly. Input from the elderly and handicapped will help broaden opportunities and accessibility for all individuals.

Architectural Theme

The Department of Natural Resources, Bureau of Engineering, has developed an architectural theme that will be used for all future buildings and remodeling projects that are done in the park. The theme incorporates design elements that reflect the rolling topography that is characteristic of the park. Design elements, such as low profile buildings, hip roofs, curved walls, and exterior spaces, emphasize the natural shapes that give the park its scenic beauty. This theme is intended to give the buildings unity and to give Lake Maria State Park an identity that is unique.

Proposed Development



LEGEND

- A Existing Picnic Site
- B Proposed Picnic Site
- B' Proposed Walk-in Picnic Sites
- C Proposed Trail/Interpretive Center
- D Proposed Contact Station and Park Office
- E Existing Administrative Site
- F Group Campsite
- Existing Trail (Proposed Hiking/Cross Country Skiing)
- Proposed Trail (Hiking/Cross Country Skiing
- Proposed Grants-in-Aid (if needed)
- Handicapped Accessible Trail
- Existing Trail (To be Removed)

Roads and Parking Lots $232,000

Objectives: To provide well-signed routes to the park and to provide a road system that can provide safe, year-round passage to all of the park's facilities while still maintaining the park's natural character

1. Proposed Action: Pave all existing roads and parking lots with asphalt.

   Rationale: The present roads and lots are currently surfaced with gravel. They are dusty and muddy and detract from the natural quality of the park. As use increases, dust and mud will cover vegetation detracting from the scenic quality of the park. Asphalt surfaces will eliminate erosion and increase visitor enjoyment of the park. Asphalt surfaces will make it possible to keep park roads open all year without damage. By paving the parking lot in the administrative site, working conditions will be much cleaner and much more efficient.

   Cost: $185,000

2. Proposed Action: Sign park entrance from I-94 with large, easy to read signs. Details should be worked out with the county highway engineer.

   Rationale: The park is presently difficult for the unfamiliar user to find.

   Cost: $2,000

3. Proposed Action: An additional 1/3 mile of paved road should be built from the main park road to the new trail/interpretive center and parking for 200 cars should be provided. The parking lot will be phased in, with the first phase accommodating 30-50 cars. The remainder will be added as needed.

   Rationale: Access to the center must be provided.

   Cost: $45,000

Administration and Service Area $60,000

Objective: To provide adequate administrative and service facilities in order to maintain good public relations and working conditions for park employees

1. Manager's Residence $29,000

   a. Proposed Action: Remodel the house with a 15 x 22 foot addition. This addition would provide additional living and storage space.

      Rationale: The present residence is small, with little storage room.

      Cost: $23,000

   b. Proposed Action: Redesign the exterior of the manager's residence to match the new architectural theme.

      Rationale: An architectural theme is being developed to give the park buildings unity. Since a major addition is being proposed for the manager's residence, it would be a logical time to redesign the exterior.

      Cost: Covered in 1a.

   c. Proposed Action: Build a 2½ car garage next to the manager's residence.

      Rationale: Presently, the manager has to keep personal property in the main shop building. This takes up space that could be better used for park purposes.

      Cost: $6,000

2. Main Shop Building $1,000

   a. Proposed Action: Paint the building to match new buildings.

      Rationale: Painting is a normal maintenance operation.

3. Contact Station $10,000

   a. Proposed Action: Regrade and landscape the contact station area using native plant materials where possible.

      Rationale: The building project had no funds for finish grading and landscaping.

4. Storage Building $20,000

a. Proposed Action: Build an unheated storage building with a loading ramp.

Rationale: There are many types of materials and pieces of equipment that should be stored inside but which do not require a heated building.

Cost: $15,000

b. Proposed Action: Build an oil and gas storage building with an underground gasoline storage tank.

Rationale: For safety reasons flammables should never be stored inside a building that can burn. A fireproof building made of concrete block, well away from other buildings, would be a safe place to keep flammables. This action is required to comply with Occupational Safety and Health Administration regulations.

Cost: $5,000

General Utility Work $7,500

Objective: To provide the necessary utilities without disturbing the park's aesthetics

Proposed Action: Bury the 3,500 feet of power line that presently serves the park.

Rationale: Overhead utility lines are not compatible with the character of a natural state park.

Camping $50,000

Objective: To provide primitive, individual and group camping experiences in a natural setting

1. Family Campground on Maria Lake - 12 sites

a. Proposed Action: Discontinue camping on Maria Lake and convert desirable sites to picnic sites.

Rationale: The present sites are in poor condition and cannot support even the small amount of use that they presently receive. The campsites are located on poor soils that cannot withstand the extended periods of use that camping requires. The picnic sites located in the same general area have been holding up quite well.

Cost: Covered under the proposals for picnicking.

b. Proposed Action: Revegetate campsites or let natural vegetation reestablish itself.

Rationale: One of the objectives of parks is to preserve areas in their natural condition while providing recreational opportunities. By revegetating or letting natural revegetation take place, we would restore the damaged areas to their natural condition while providing a much more desirable setting for picnicking.

Cost: None

2. Present Group Camping Area

a. Proposed Action: Eliminate the large group camp.

Rationale: The group camp has problems similar to the existing campground. The sites are located in very shady areas on soils that cannot withstand the intensive use. Consequently, soils have been compacted, and with little sunlight penetration, ground vegetation has severely deteriorated, resulting in erosion.

Cost: None

3. Primitive Walk-in Campsites

a. Proposed Action: Develop 35 remote walk-in campsites throughout the park. Thirty of these sites should be located in clusters of 6 sites within 100' of a wilderness toilet and a maximum of 400' from garbage cans. The clusters should be located to provide maximum privacy within every site. The sites should be on level or nearly level terrain. Sitings should be conducted or approved by the landscape architect in the Bureau of Engineering who is responsible for that park. The sites should be located so that they are accessible from the hiking trail system. Ten individual backpacking sites are to be located on the hiking trails throughout the park. Water will be available at the parking area of the trail/interpretive center.

Rationale: Remote camping is the best form of camping to develop in Lake Maria for several reasons:

1) The soils are not suitable for intensive development.
2) The topography of the park restricts development to only dispersed forms of recreation.
3) There are private and public facilities within a short drive that can provide other forms of camping.

NOTE: Use of all remote sites should be rotated to prevent resource damage.

Cost: $35,000

4. Primitive Group Camp

a. Proposed Action: Develop 3 or 4, 1/4 to 1/2 acre clearings for group campsites south of the trail/interpretive center.

1) Clear trees off sites and maintain permanent grass cover. These sites will also serve as permanent wildlife openings. Some trees should be retained to shade tent pads. The sites should be mowed once each year, no sooner than the last week in July. Periodic burning (3 to 5 year intervals) should be done to eliminate excessive build-up of dead grass. This should be done in early spring when there is still snow in the surrounding woods.

2) Sites should be randomly spaced and irregularly shaped to fit natural vegetation patterns.

3) Access should be provided to the sites by trail only. Parking can be provided at the trail/interpretive center.

4) Each site will be furnished with several picnic tables, a pit toilet, a large fire ring, and individual fire rings for each tent pad.

5) Use of sites should be rotated to protect them from overuse.

Rationale: There is a demand for group camping facilities that can be readily provided. Group camps would fit very easily into the character and theme of the park and would also serve as permanent grass openings which are extremely valuable to wildlife in the mature hardwood forests.

Cost: $15,000

Picnic Areas $120,000

Objective: To provide an improved, varied picnicking experience

1. Proposed Action: Reduce the number of sites in the picnic area by approximately 50%.

   Rationale: The present picnic area is located on a relatively flat site within a larger area of steeply rolling topography. The site receives a fair amount of use and functions adequately but has never been specifically designed. This lack of design and the density of tables has led to some wear of sites, particularly in the wooded section. Reducing the density along the following recommendations will provide an excellent picnicking experience.

   Cost: None

2. Proposed Action: Open up the tree canopy to allow sunlight in so that turf can be reestablished.

   Rationale: By allowing light to penetrate, a good dense cover of turf could be established. The turf would eliminate many of the bare soil areas that exist and would result in a much more natural appearing picnic area.

   Cost: $2,000

3. Proposed Action: Develop a surfaced circulation system within the existing picnic area providing access to all sites and to the toilets. Approximately 500' of 4' wide trail surfaced with crushed limestone or other suitable material would be sufficient to provide the needed access.

   Rationale: A developed circulation system would help to eliminate compaction problems that result from users randomly walking through the area. Surfaced trails would also make the picnic area more accessible to people with physical handicaps or with mobility problems.

   Cost: $5,000

4. Proposed Action: Provide a permanent toilet system in the picnic area. The building should be of uni-sex design, use minimum water fixtures, and be accessible to all park users.

   Rationale: The area has little room for pit toilets, so a permanent system should be installed. By using a uni-sex design, duplication of facilities would be minimized and handicapped people could be aided much easier. Minimum water fixtures would reduce water consumption and be less demanding on soils that exist in the park. Self-contained composting toilets are being tested at St. Croix Wild River State Park. If the results are favorable, this type of fixture may be substituted for more conventional equipment.

   Cost: $50,000

5. Proposed Action: Redevelop the present group camp facility for walk in, group picnicking. The total facility should contain approximately 20 sites in clusters of four, sites starting with just one cluster and adding more as needed. Nearly all the clusters should be located about 600 feet east of the parking lot on good soils.

   Rationale: The present setup is not adequate because the site is located in an area of steep topography. The group camp will function better near the interpretive/trail center, as recommended on page 74. The present parking lot, well, and access road will be maintained (though the lot will be altered). The lot and well are located on an old homesite and part of the access road was the access to the homesite. Since they are well-designed and already developed, they will be retained. The level area, where the lot is, is big enough for only one cluster of picnic sites. The sites will be located in an area of fairly level good soils approximately 600 feet east of the lot.

   Cost: $5,000

6. Proposed Action: Redesign and rebuild the parking lot using the present base. The hard edges should be softened by planting trees and shrubs, and the large surface area should be reduced by islands of plant materials.

   Rationale: The present parking lot has a very unnatural effect on the site. By doing some planting and screening, the impact of the parking lot can be minimized and the natural atmosphere of the area restored.

   Cost: $8,000

7. Proposed Action: Develop a surfaced circulation system to provide access to the new picnic sites. Five hundred feet of 4' wide trail surface with crushed limestone will provide access to all sites and to toilets.

   Rationale: Same as for surfacing in existing picnic area.

   Cost: $5,000

8. Proposed Action: Provide a permanent toilet system in the new picnic area. The building should be of a uni-sex design, use minimum water fixtures,and be accessible to all park users.

   Rationale: The area is not well suited for pit toilets, but needs sanitation facilities. By using uni-sex design, duplication of facilities would be minimized and handicapped users could be aided much more easily. Minimum water fixtures would reduce water consumption and be less demanding on the park's marginal drainfield soils. Self-contained composting toilets may be used here.

   Cost: $50,000

9. Proposed Action: As the demand for picnicking grows and the picnic areas become overcrowded, the converted group camp picnic area can be expanded to the east as needed.

   Rationale: The area directly east of the converted group camp picnic ground is one of the most developable areas in the park, and should be able to handle future needs.

   Cost: $20,000

Trails $41,000

Objectives: To establish a well-signed, year-round pedestrian trail system with portions accessible to all park visitors

To provide necessary auxiliary facilities and trail link-ups

1. Snowmobile Trails

   a. Proposed Action: Convert the existing snowmobile loop system to hiking/cross country ski trails.

Rationale: The park is too small and resources too delicate to provide a system of snowmobile loops. The ones that exist, other than those that follow park roads, were never designed to be used as snowmobile trails. They are narrow, very steep, eroded, and short, and do not provide a good trail experience.

Cost: See Hiking/Cross Country Ski Trails below.

b. Proposed Action: Construct a through route snowmobile trail system within the park which will provide snowmobilers with access to park facilities and an external trail system.

Rationale: A connecting link through the park would provide users of an external snowmobile trail system with access to the trail center. The provision of such a warming facility would add greatly to the comfort of the snowmobile trail users.

This proposed action is contingent on the construction of a grant-in-aid snowmobile trail system in the area. The exact location of the connecting trail within the park and the amount of funding required can only be determined once the grant-in-aid system is established.

Cost: Will be estimated at a later date.

2. Hiking/Cross Country Ski Trails $39,000

a. Proposed Action: Redesign the existing 3 mile snowmobile loop for use as a hiking/cross country skiing trail.

Rationale: The small size of this park makes it suitable for hiking, skiing, and other non-motorized activities. In addition, non-motorized activities are more appropriate for a park with a natural state park classification.

Cost: $2,000

b. Proposed Action: Add approximately five more miles of trail to the existing five and one-half mile system.

Rationale: By adding five miles to the existing system the park would be covered by a network of trails, and visitor use would be dispersed. An additional five miles of trail would link all the present trail loops into an organized system that would allow park users an almost unlimited choice of trail routes.

Cost: $3,000

c. Proposed Action: Surface one loop with crushed limestone or other suitable material to a width of 8 feet, thus making it handicapped accessible and usable as a maintenance access road. The loop will originate from the trail/interpretive center and will provide access to most of the major features of the park.

Rationale: The park should be accessible to all segments of the population and a surfaced trail would allow people with mobility problems to enjoy all portions of the park without a great deal of difficulty. The surfaced trail would also allow access for service equipment without damaging the fragile soils. The proposed trail location illustrated on the development map may be changed by the accessibility programs specialist. However, any changes should be coordinated with the locations of remote campsites.

Cost: ,$15,000

d. Proposed Action: Develop a boardwalk trail between Bjorklund Lake and Maria Lake (see map, p.). Approximately 850 feet of boardwalk, 6 feet wide, is needed to cross four marsh areas. The boardwalk will float on the marsh vegetation and will fluctuate with seasonal water levels, providing park users with a close up look at the marsh community during any season of the year.

Rationale: By providing a trail through the marsh area, visitors will have access to a portion of the park that they normally would not see. This trail will provide a safe access for users who wish to explore the marsh, and at the same time it will protect the marsh from damage that could be caused by uncontrolled use.

Cost: $16,000

e. Proposed Action: Provide a uniform signing system for trails within the park. The system should have a map at each intersection with the entire trail system mapped out showing trail users exactly where they are.

Rationale: Because of the complex system of trails and the rolling topography within the park, it is important that people using the trails are frequently reassured where they are. By letting them know where they are, they will enjoy the park more, and will have the opportunity to choose alternate routes.

Cost: $3,000

Trail/Interpretive Center $120,000

Objectives: To provide the necessary facilities for a year-round interpretive program

a. Proposed Action: Develop a combination trail/interpretive center near the heart of the park that will serve as both a trail center and interpretive center.

Rationale: Since both activities are very compatible and require similar types of interior spaces, a combination building can be built that will house both activities. Most people who come to Lake Maria are interested in the resources of the area. Giving them the opportunity to enjoy their recreational activity and to learn about the park at the same time, will make their enjoyment of the park much keener.

b. Proposed Action: The center should contain a small office for the interpretive personnel, winterized restrooms, a display area, a multi-purpose area that will serve as a media presentation area and as a warm-up area during winter months, and an outdoor activity area containing a deck and sitting area.

Rationale: The center can very easily handle trail and interpretive activities. The primary use of the center would be interpretive programs during summer months and as a trail center during the winter. This would minimize conflicts between user groups and at the same time eliminate the need to provide two separate facilities.

Canoe Launching Facilities

Objectives: To provide non-motorized access to the two major lakes

a. Proposed Action: Maintain present canoe access to Lake Maria and provide rental canoes on both Bjorklund and Maria lakes.

Rationale: Canoeing is a valid form of recreation in a state park and it fits in well with the natural classification. Also, since Maria Lake is very shallow (in most of the lake the water depth is only a few feet), it is not suitable for power boating or sailing.

Cost: None

Interpretation is "an educational activity which aims to reveal meanings and relationships through the use of original objects, by first-hand experience, and by illustrative media, rather than simply to communicate factual information" (Freeman Tilden). In this light, the interpretive services program fosters in the public an understanding of park resources and management by:

1. Revealing the kinship of park visitors to the park environment and, by association, their even broader involvement within ecosystems.

2. Illuminating the historic and ongoing impacts of natural forces within the park and upon the people who use them.

3. Assisting park visitors in the discovery of meaningful and satisfying ways in which to enjoy their visits without intruding on the experiences of others or impairing the quality of the park environment.

4. Explaining the mission of the Department of Natural Resources' interdisciplinary park management practices and the importance of public participation and support in the operation of this agency.

Interpretive services will be developed in recognition of the following:

1. All parks are fragile communities of life which can be perpetuated only through careful management.

2. People are a natural and necessary element in the park, free to enjoy the environment in non-destructive ways.

3. All natural resource units and the publics they serve are tied to one another ecologically, economically, socially, and politically.

It is hoped that the people who recreate and learn in the parks will, by experiencing the parks and related interpretive services, derive a better quality of life with increased environmental awareness. As people are encouraged to think and to feel more about park environments, they can be expected to do more on behalf of these environments. They can also be expected to strengthen their ties with the land and with our state's cultural heritage.

Interpretive Theme

The interpretive theme for Lake Maria State Park should concern itself primarily with the Big Woods Landscape Region. Sub-themes include animal habitats, wetlands, and the transition zone. The park's natural features consist of a highly diverse array of floral and faunal species consistent with the communities associated with the remnant big woods and southwestern-central Minnesota.

Park faunal species include, but are not limited to the common loon, great blue heron, green heron, great egret, bittern, whistling swan, Canada goose, snow goose, and a great variety and abundance of ducks, hawks, bald eagle, osprey, owls, woodpeckers, and many other mammals, amphibians, reptiles, and insects. Wildlife would serve well as an important theme for the park's interpretive program.

Interpretive Facilities

There are currently no interpretive facilities in the park. The facilities which will be developed include a trail/interpretive center and interpretive trails. The Horsetail Trail should be adapted for interpretation with signed observation stations and blinds, each dealing with a different habitat. Another trail should be developed into a self/guided interpretive trail.

Key Features and Program Opportunities

The interpretive theme for Lake Maria State Park is natural habitats. The program should be structured around the seasonal plant and wildlife cycles which may be observed within the park. The program should be flexible, allowing the naturalist to determine the activities according to the seasonal activity of plants and animals

Slide programs should be photographed by the park naturalist in the park. These programs should present the viewers with the entire life cycle of the plants and animals found in the park. In this way, the slides may serve to complement the hiking experience, without being overly repetitive. Slide presentations should be under 15 minutes in length, clearly and briefly stated, and followed by sufficient time for wide-ranging discussion afterwards. These slide shows may be set up so that they can be operated and viewed by small groups when a naturalist is not present.

Personnel

The success of any interpretive program is directly related to the caliber of the naturalist's staff. The minimum requirement for the staffing of Lake Maria's eventual interpretive program would be a full-time, seasonal naturalist. A volunteer-in-park assistant naturalist could greatly aid the full-time, seasonal naturalist. However, a year-round, full-time naturalist who has some management ability would provide the ideal staffing for Lake Maria's interpretive program.

Program Equipment and Supplies

Equipment and supplies requirements would be limited to a camera (35 mm), sufficient film, a slide projector (35 mm), screen, trail maps , display boxes, aquariums, reference books, binoculars for bird hikes, art materials, magnifying glasses, and related field equipment.

Interpretive Prospectus

Detailed procedures for interpretive plan implementation with specifics on costs and phasing will be prepared by the regional naturalists in consultation with DNR park planning staff when the trail/interpretive center is completed.

Introduction

Boundary adjustments and acquisition must be considered in the management of any state park. The amount of land necessary to manage a park correctly must be determined and acquired before management can be effeciently carried out. There are two goals that should be strived for in every park:

To study all present and future state parks to determine if they have sufficient acreage to preserve and perpetuate their natural resources and still provide areas for the necessary recreational facilities and activities. In the same light, however, only acreage that is necessary and would be reasonable to purchase should be included.

To control all land within the statutory boundary by fee title (direct ownership).

Because it would be fiscally and physically impossible to achieve these goals overnight, this plan will establish priorities that will work toward them. The following framework will be used in developing adjustments and acquisition priorities:

1. Land needed for preservation or perpetuation of park resources or values.

2. Land needed for development of facilities.

3. Unimproved buffer land needed to prevent development or use which would be incompatible with existing or potential park purposes.

Specific Recommendations

Map Code, p. 88	Recommendation
1	All of the land in Lake Maria State Park is in state ownership except a 20 acre strip along a township road on the north side of the park. It is recommended that this parcel remain in the statutory boundary, but no attempt should be made to purchase it, unless future trail development requires it.
2	•W1 /2 of Sec. 4 (T121N R26W) east of the township road It is recommended that this parcel be included in a boundary expansion of the park. Including this area will guarantee future control of all of Lake Maria and the valuable wildlife habitat in the surrounding wetlands. This area will also provide room for expanded trail and remote campsite development in the future.
3	•S 1/2 of the S 1/2 of Sec. 34 (T122N R26W) •W 1/2 of the NE 1/4 of Sec. 9 (T121N R26W) These areas have good potential for park use. They should be protected from intensive development. These areas would provide locations for future remote campsite and trail development. However, due to public pressure these lands will <u>not</u> be included in the boundary expansion proposal. The county will be encouraged to zone these areas to prevent non-compatible uses.
4	•N 1/2 of the S1/2 of Sec. 34 and S 1/2 of Sec. 33 east of the township road (T122N R26W) •E 1/2 of the NW 1/4 of Sec. 9 (T121N R26W) These areas have only marginal potential for park use. They are largely cultivated, therefore would require major restoration to make them compatible with the character of the park. Due to public pressure these areas will also <u>not</u> be included in the boundary expansion proposal. Again Wright County will be encouraged to zone these areas to prevent non-compatible uses.


Boundary Modifications
33
34
4
3
West Lake
T. 122 N.
T. 121 N.
1
2
Lake Maria
4
5
3
2
Silver Lake
Bjorklund Lake
4
3
Slough Lake
11
8
10
9
Miles
0
1/8
1/4
1/2
0
0.5
1
Kilometers

Recommendation #2 will require legislative approval before it can be implemented. Therefore, January 1978 is the earliest that any action can take place. Recommendations #3 and #4 are currently being implemented. Wright County is rewriting its county zoning plan so that compatible uses in the area will be ensured for years to come.

STAFFING AND EQUIPMENT

Introduction

Maintenance is an essential, little noticed, and difficult to finance responsibility of the Parks and Recreation Division. The basic obligation of the state is to maintain the landscape resources and state park facilities in a safe, sanitary, environmentally sound, and aesthetically pleasing condition. These facilities must be operated in a manner that provides maximum use and enjoyment at the least possible cost, consistent with state law. There are four basic aspects to maintenance and operations.

1. Maintenance of the landscape resources for the use and enjoyment of future generations
2. Maintenance of the recreation facilities that provide access to those resources
3. Provision of services to the park visitors for maximum enjoyment of facilities and resources
4. Enforcement of rules and regulations to protect the resources from abuse and to ensure enjoyment of the facilities by park visitors

To accomplish these goals requires (a) trained staff, (b) sufficient supplies, and (c) proper equipment to maintain efficiency in operation and keep costs to a minimum.

The task of providing services to the public and security for park facilities and resources 24 hours per day, 12 months of the year is monumental. During the busy season, full-time operations are necessary 98 hours per week (8:00 to 10:00 p.m., seven days a week). The remaining hours are covered by night patrol and the presence of the resident manager. During other seasons, only part-time operations are provided 98 hours per week, however, maintenance, repair, and park security responsibilities account for many extra man-hours. If these responsibilities are to be met, competent trained personnel are necessary.

A work load analysis of park operating functions has been initiated to ascertain the personnel needs of each park, based upon existing facilities and current operations. This study identifies the man-hours needed to perform each task required for adequate maintenance and operation. Initial results reveal:

1. an extreme shortage of adequate personnel,
2. that due to procedures necessary in hiring seasonal workers, high cost labor employees are used for jobs more appropriate to other job classifications, and
3. that a high percentage of man-hours are related to direct services to the public.

These factors limit the personnel for proper maintenance of facilities. Extensive development since the inception of the Natural Resources Act of 1963 has been a primary contributor to the widening gap between maintenance and development. From the work load study, standards can be established to determine man-hour operating requirements for future facilities as they are proposed for development, so that sufficient personnel and supplies can be provided. Facilities must be properly designed to meet the needs of the public, while being operational with minimum personnel at the lowest possible cost to the public.

Another contributing factor to the current park operations problem is the heavy reliance on federally funded work programs, such as CETA, N.Y.C., and Green Thumb. The low cost personnel provided by these programs make it possible for parks to offer programs and services which would otherwise be impossible. However, these employees are hired on a short-term basis, usually 8 to 10 weeks, and often do not have the training and experience necessary to provide needed services without constant supervision in already understaffed parks. To avoid these problems, funding should be made available to hire adequately trained personnel for major public service and maintenance programs using temporary employees only for minor maintenance and special projects.

Enforcement of park rules and regulations is a vital element in the management of state parks. Currently, violations are referred to DNR enforcement officers for follow through on prosecution. Park personnel should have the technical training and tools needed to carry out this responsibility in a manner which will protect the resources from abuse, while educating the visitor to the importance of environmental protection.

One of the major maintenance problems of recreational areas is the extreme impact of large numbers of people concentrating use in specific locations. These areas include campsites, trails, lakeshore, river banks, the area around buildings, and scenic points of interest. This overuse affects the ground cover and frequently exposes tree roots to damage from foot traffic. The eventual result may be erosion, slides, disfigured sites, and even danger to the visitors. Regular maintenance programs with adequate personnel, supplies, and equipment would reduce the damage and consequently prevent major reconstruction expenditures. It will also preserve the aesthetic character by preventing unsightly scars or exposed areas.

The purpose of a maintenance and operations plan is to identify specific problems of each park, establish the basis for solution of those problems, and to specify techniques of management which would decrease the costs of operation. It should make specific recommendations for facilities which will serve the needs of visitors with a minimum of regimentation and provide for ease of maintenance and enforcement. It should also identify basic management duties, establish adequate staffing requirements, and identify supply and equipment needs.

Objective:

To ensure that there is adequate staff and equipment to efficiently and effectively operate Lake Maria State Park

Park Administrative Duties and Responsibilities

The park manager at Lake Maria will administer the total park maintenance and operations program, and implement appropriate segments of the development program as funds are made available, under the direct supervision of the park supervisor at DNR regional headquarters, Brainerd, Minnesota. This consists of supervising park employees and services, providing law enforcement consistent with DNR policies, providing interpretive services and conducting them when necessary, maintaining sound public relations, recruiting employees, soliciting volunteers and other work programs, and assisting in all park operations when possible. These responsibilities limit the time available for actual participation in maintenance and operations functions, especially during the high visitor use season. Additional personnel, as specified in the following pages, are necessary to provide adequate public services and fully implement this plan.

Contact station personnel (park workers) keep records, provide initial public contact and information, vehicle permit sales, wood sales, camper registration services, and minor janitorial services.

Interpretive services personnel will conduct seasonal outdoor and indoor programs for visitor appreciation of the natural characteristics of the park. This park has a great variety of resources with potential for interpretation when the interpretive/trail center is constructed.

Maintenance personnel (laborers, park workers, and student workers) provide a broad range of duties. This includes maintaining shop buildings, public buildings, grounds, trails, roads, parking areas, tables, signs and equipment, conducting night patrol and providing semi-skilled labor for rehabilitation and development projects. CETA and other programs can provide valuable assistance when available, however, they require qualified park employees for supervision.

Park Operations and Activities

Camping temporarily allowed in the picnic area parking lot will be reoriented to remote (hike-in) type sites with parking in the interpretive/trail center area. Vehicle camping facilities will not be provided but are available at nearby private facilities. Registration and site assignments will be handled at the contact station to be completed by the end of 1977.

Group camp - primitive - Group camping sites and parking will be developed in the trail center area. These sites may be reserved by organized groups or used by family groups when not reserved.

Interpretive services will be oriented from the interpretive/trail center when constructed. Portions of the interpretive trails will be accessible for the handicapped. Current programs are conducted part-time by a volunteer program naturalist.

Trails will provide a primary use and access in Lake Maria. The park will be trail-oriented for carry-in camping, hiking, backpacking, skiing and interpretation. Snowmobiles will be restricted to a through route and access to the trail center. Horses will not be permitted on park trails.

Canoeing and canoe rentals are available on Lake Maria. This activity should eventually expand to more than the six canoes currently available.

Operating seasons - Because of its proximity to the metro area, Lake Maria experiences camping pressure from early spring until late fall and heavy skiing pressure in winter. Modern facilities will be opened between April 15 and May 1st and be closed about October 1st. Roads may be closed because of snow, mud, or fire danger.

Summer

The heaviest camping pressure can be expected from Memorial Day to Labor Day, with increasing use during the spring and fall. Currently, contact station operations are only necessary part-time. When the need for permit sales and camper registration justifies full-time contact station operations, personnel must be provided to cover 98 hours per week. Camping, hiking, and picnicking are the primary park facilities. Interpretation will be provided for these three months.

Spring and Fall

Only part-time contact station operations will be necessary for the foreseeable future, except on weekends when full-time operation will be necessary as the use increases. These are the primary maintenance and development seasons. Hiking and camping are principle activities. Enforcement of hunting regulations is required in the fall.

Winter

Skiing is growing fast and is expected to be a major activity for large numbers of people in this park in the near future. A twelve-mile ski trail outside the park will connect to the park trails providing an outstanding skiing combination. Access will be provided from the park for snowmobiles to use a 100-mile system proposed for the county. Park personnel are involved in trail grooming, enforcement, and administrative and maintenance duties.

Maintenance and Operations Problems

1. Staffing - Currently, the permanent staff consists of one full-time manager, plus other seasonal employees as listed in the staffing chart.

   Recommendation: In order to adequately meet the duties and responsibilities previously stated, and to correct the problems listed in succeeding pages, the following additional personnel are needed:

   a. Full-time technician - This person will provide the additional supervisory coverage essential to the operations of this park. This employee will be involved in supervising maintenance and construction programs, in providing additional supervision of public operations both winter and summer to relieve the manager from long overtime hours, in implementing portions of this plan, especially resource management, and in all phases of park operations where needed.

   b. Park workers - These positions will be necessary to operate the contact station part-time for 1978.

      1. Provide one full-time worker from April 15 through Labor Day.
      2. Provide one half-time worker from May 15 through September.

   c. Naturalist - Provide a three month seasonal naturalist to develop and conduct an interpretive program.

   d. Labor - To provide necessary maintenance.

      1. Extend one laborer position from four month to seven month.
      2. Maintain one laborer position at four month part-time.

2. Camping - Operations will be very time consuming because of the widely separated trail sites.

   Recommendation: Trail clearance for small maintenance vehicles will be necessary to each site and the toilets serving those sites. Much of the enforcement and maintenance will be by foot. To ensure proper sanitation, a sufficient number of strategically located screened wilderness and pit toilets will be necessary. The number necessary for this will increase the maintenance workload considerably. Registration will be handled from the contact station and will require personnel on duty regularly to minimize site checking for registration.

3. Resource damage from heavy use can be anticipated because the sensitive soils are subject to erosion.

   Recommendation: Constant inspection and immediate maintenance will be necessary to prevent severe damage.

4. Enforcement of park rules and game laws. Current violations are processed through DNR Enforcement or by formal process through the county. Consistent patrol is necessary to prevent vehicles from using unauthorized trails and to prevent illegal hunting.

   Recommendation: Each park officer must receive the training mandatory for issuing summons and legal summons authority must be provided through legislation. Coordination with local conservation officers and other enforcement agencies is necessary.

5. Boundary fencing along the north and portions of the west boundary.

   Responsibility: The park is responsible for maintaining mutual boundary fences on a shared basis. Arrangements should be made with adjacent landowners to accomplish this.

6. Solid waste disposal is currently accomplished by park staff collecting and hauling to a central point where a local contractor picks it up weekly from May through October, and monthly for the balance of the year.

   Recommendation: This method should be continued, because with the new isolated camping arrangement, garbage and litter collection will have to be done with small equipment and park staff. Proper equipment will be necessary, such as a type of ATV with cargo space.

7. Equipment - A lack of the proper equipment to match the job being done has been a major problem in parks in the past, and, therefore, has increased the cost of operations because of excessive labor requirements and extensive repairs on old equipment.

   Recommendation: The equipment itemized in this section will provide the basic essentials to correct this problem and reduce the labor, maintenance,and operational costs considerably.

8. Road maintenance - Erosion along the hilly road alignment is a continual problem. Current maintenance is accomplished using the park tractor and township pull grader with intermittent grading by arrangement with the county.

   Recommendation: Blacktop the entire road system to prevent erosion and dust problems.

9. Snow removal is accomplished with the park tractor loader.

   Recommendation: A four-wheel-drive truck with plow may be the best solution when the trail center is constructed for winter use. The county or a private contractor could be contracted with for occasional winging and widening as needed.

10. Trail grooming for cross-country skiing will be an increasing problem as the use increases and trails are added. Grooming of snowmobile trails will be minor because of limited trails.

    Recommendation: Current grooming by snowmobile can continue temporarily. As the need develops and outside trails are constructed, large equipment will be necessary and coordination with other agencies will be required to maintain those trails.

11. Trail maintenance will be a major operation with the extensive trail usage and erodable soils.

    Recommendation: Regular inspection and maintenance will be necessary. An ATV will be valuable for this purpose.

12. Communications - Because of the spread out facilities, communications for security, safety, and maintenance will be difficult and time consuming.

    Recommendation: A radio system with base station, mobile units and portable hand units should be purchased.

Equipment

The items of equipment listed below, when replaced on a regularly scheduled basis, are considered essential for the current overall operations of this park, although the needs may change periodically throughout the 10 year projection. Heavy equipment and specialized equipment not listed should be obtained through the regional office. Equipment of the proper size and type must be selected on a park by park basis to match the conditions and job being accomplished. Proper up to date equipment will reduce the personnel needs, the cost of repairs on old equipment and the cost of maintenance and improvement projects.

1978-1987 Projected Equipment Replacement Schedule

Unit	Existing	1978-79	1980-81	1982-83	1984-85	1986-87	Total
1/2 Ton	1974	$ 4,400	$4,800		$ 5,800	$ 6,300	$21,300
3/4 Ton 4-wheel drive			6,000			7,000	13,000
2-bucket sickle blade tractor	1949 Fd.	10,000					10,000
Trail groomer				$8,000			8,000
Snowmobile	1972	1,300		1,500		1,700	4,500
ATV			5,000			6,000	11,000
Small (mowers, etc.)		3,000	3,300	3,600	4,000	4,400	18,300
Other (radio)		5,000		Interpretive Center Equipment			5,000
Total		$23,700	$19,100	$13,100	$ 9,800	$25,400	$91,100

Future replacement will be based upon the following general criteria:

- Light maintenance and administrative vehicles: 5 years or 70,000 miles.
- Heavy maintenance equipment: With the limited use received, this equipment could last a long time and be replaced on an individual item basis when necessary or be exchanged through the region for other improved vehicles.
- Small equipment: Mowers and chainsaws need regular replacement with the consistent use received. Other motorized equipment will be purchased as needed.
- Other equipment: Interpretive furniture, fixtures, and supplies will be replaced as needed.

Current Personnel Staffing Requirements

The chart shows existing staff and the staff needed to adequately accomplish current operations and maintenance. The staff needs shown here are based upon a workload analysis which identifies present park functions and work-hours neccessary to accomplish these functions.

	Existing 1976-77		Actual Needs	
Administrative Personnel:				
Park Manager	12 mo.	$ 11,200	12 mo.	$ 12,100
Assistant (technician)			12 mo.	8,500
Public Services Personnel:				
Naturalist (CETA)			3 mo.	$ 2,700
Park Worker			4½ mo.	3,000
Park Worker (part-time)			4½ mo.	1,000
Maintenance Personnel				
Laborer (part-time)		$ 3,700		$ 7,000
Laborer (part-time)		2,100		2,400
Total		$ 17,000		$ 36,700

CETA and other programs should be used to supplement maintenance and cleanup functions and for public services in emergency situations only. Student workers would provide additional personnel for maintenance items and needed jobs could be provided for students.

Future Staff Requirements

As new facilities are developed and visitation increases, new responsibilities are added and more services required. The following are estimated additional personnel needs to meet the demands as they occur.

(1)	Trail development by 1978 will require:	
	a. Labor for maintenance 3 month	$ 3,000
(2)	Campgound development by 1980 will require:	
	a. Park Worker 4 month to operate contact station	3,000
	b. Labor for maintenance 5 month	5,000
(3)	Interpretive/trail center by 1982 will require:	
	a. Naturalist 3 month part-time	2,000
	b. Park Worker 3 month to open center	3,000
	c. Labor for summer and winter maintenance	5,000
(4)	Camping expansion and group camp development for 1984 will require:	
	a. Park Worker 3 month for contact station	3,000
	b. Labor for maintenance 3 month	3,000
	Total 10-year estimated additional staff requirement shown on summary sheet	$27,000

MAINTENANCE AND OPERATIONS SUMMARY

The figures for the period 1980 through 1987 are estimated projections intended to illustrate the scope of the potential maintenance and operations costs, including the operation of new facilities, plus an estimated 10% 2-year salary inflation cost.

		Biennium			
	78-79	80-81	82-83	84-85	86-87
PERSONNEL:					
Existing 76-77 $34,000					
Actual Needs (for current operations based on staffing chart)	$73,000				
Personnel Costs (from previous biennium)		$86,900	$113,200	$146,500	$174,300
Additional Personnel Needs (to operate new facilities, p.100)	①6,000	②16,000	③20,000	④12,000	
Sub Total	79,000	102,900	133,200	158,500	174,300
10% Salary Inflation	7,900	10,300	13,300	15,800	17,400
TOTAL BIENNIAL PERSONNEL COSTS	86,900	113,200	146,500	174,300	191,700
SUPPLIES: Administrative Overhead and Expenses (20% of personnel costs)	17,400	22,600	29,300	34,900	38,300
EQUIPMENT: (from equipment schedule)	23,700	19,100	13,100	9,800	25,400
TOTAL PROJECTED BIENNIAL MAINTENANCE AND OPERATIONS COSTS:	$128,000	$154,900	$188,900	$219,000	$255,400
ANNUAL COST BREAKDOWN:	$64,000	$77,450	$94,450	$109,500	$127,700
TOTAL 10 YEAR COST PROJECTION:	$946,200				

WATER RESOURCE MANAGEMENT

Biennium

Management Practice	78-79	80-81	82-83	84-85	86-87	Total
Fill in drainage ditches	$ 2,000					$ 2,000
Total	$ 2,000					$ 2,000

VEGETATION MANAGEMENT

Biennium

Management Practice	78-79	80-81	82-83	84-85	86-87	Total
Burn	$ 5,760	$ 21,480	$ 3,960	$ 10,740	$ 3,120	$ 45,060
Timber Removal (mechanical)		9,200	12,000	7,700	9,400	38,300
Timber Removal (chemical)	240	245	245	245	245	1,220
Plant		2,000		3,500	7,000	12,500
Research	5,000	7,500	7,500			20,000
Total	$ 11,000	$ 40,425	$ 23,705	$ 22,185	$ 19,765	$ 117,080

CULTURAL RESOURCE MANAGEMENT

Biennium

Management Practice	78-79	80-81	82-83	84-85	86-87	Total
Field Survey- Phase #1	$ 1,700					$ 1,700
Total	$ 1,700					$ 1,700

RECREATION MANAGEMENT BUDGET

Management Practice	Biennium 78-79	80-81	82-83	84-85	86-87	Total
CAMPING						$ 55,000
35 remote sites	$ 35,000					
5 remote and group sites			$ 20,000			
PICNICKING						120,000
Rehabilitate present area	10,000					
Add permanent sanitation facility			40,000			
Convert group camp				$ 50,000		
Add to group camp					$ 20,000	
TRAILS	41,000					41,000
TRAIL/INTERPRETIVE CENTER		$ 120,000				120,000
ROADS/PARKING LOTS/SIGNS						232,000
Entrance road from 111 to trail center/ parking lots and signs	72,000					
Trail center cutoff to Maria Lake and service area		122,000				
Old group camp road and parking lot				38,000		
UTILITIES			7,500			7,500
ADMINISTRATION AND SERVICE AREA						60,000
Manager's residence and garage			29,000			
Paint shop				1,000		
Construct oil storage building			5,000			
Construct cold storage building			15,000			
Contact station landscaping	10,000					
Total	$ 168,000	$ 242,000	$ 116,500	$ 89,000	$ 20,000	$ 635,500

TOTAL MANAGEMENT BUDGET

Biennium

	78-79	80-81	82-83	84-85	86-87	Total
WATER RESOURCES	$ 2,000					$ 2,000
VEGETATION	11,000	$ 40,425	$ 23,705	$ 22,185	$ 19,765	117,080
CULTURAL RESOURCES	1,700	*	*	*	*	1,700*
RECREATION	168,000	242,000	116,500	89,000	20,000	635,500
MAINTENANCE AND OPERATIONS	128,000	154,900	188,900	219,000	255,400	946,200
TOTAL	$ 310,700	$ 437,325	$ 329,105	$ 330,185	$ 295,165	$ 1,702,480

*Funding for these years cannot be determined until Phase 1 is carried out.

OVERALL AUTHORITIES

DIVISION OF PARKS AND RECREATION

General

Once the management plan has been completed and approved, it will become the responsibility of the director of Parks and Recreation (hereafter referred to as the director) to insure proper implementation of the concepts established in the plan. As such, the director will act as the coordinator and liaison between the planning staff, regional staff, local officials, and the general public to insure that the plan is kept current, remains on schedule, and becomes a reality.

In order to insure the accomplishment of this cooperative planning and implementation effort, the following responsibilities have been established and must be followed.

Specific Requirements

The director and staff will:

1. Coordinate and administer field operations as delegated by the assistant commissioner of operations
2. Develop and administer all programs necessary to accomplish plan goals and objectives. Programs include those necessary to implement management plans and to maintain and operate parks and other programs assigned to the division. Specific program responsibilities at this time are: acquisition, development, resource management, maintenance and service operations, interpretive services, and accessibility
3. Prepare policies, guidelines, procedures, and standards necessary to implement programs established in the plan (e.g., responsibilities relating to contracts and force account project)
4. In coordination with DNR legislative liaison, prepare legislation necessary to provide program funding, boundary changes, and operational authorities
5. Review and approve all detailed plans, specifications, and project proposals prepared by the BOE or field staff. Coordinate on-site field staking and site layouts with BOE and regional staff
6. Coordinate divisional administrative functions with other DNR administrative offices
7. Work with DNR's federal grant specialists in order to obtain maximum federal funding (e.g., LAWCON) for all division programs

8. Recommend modifications and provide information necessary to update the management plan. All modifications to the concepts established in the approved plan will be processed through the Office of Planning and Research. The director will submit requests for modifications in writing, stating justification for change and what impact the change would have on the overall management plan. If comments and rationale for opposing a proposed change are not received within 25 working days, agreement is implied. In the event that significant change in the direction of the plan is proposed (e.g., altering goals and/or objectives of the plan) it will be necessary to follow the same procedures established in developing the original plan. If the director and the Office of Planning and Research cannot come to an agreement on the requested change, the director will then submit the request to the commissioner's Planning and Environmental Review Board (PERB) which will formulate the final recommendation to be submitted to the commissioner's Executive Council
9. Assign responsibilities and funding for implementation of the development program to BOE for contracts and to the regional staff for force account projects. In addition, the director shall coordinate the implementation of resource management programs
10. Make recommendations which will expedite the park planning process and evaluate progress toward the achievement of goals and objectives stated in the plan
11. Forward BOE requisitions and field project proposals to the Office of Planning and Research so that the progress of implementation can be monitored

REGIONAL OFFICE

General

The regional administrator and staff will supervise the physical implementation programs for the approved plans as established by the division.

Specific Requirements

1. The regional administrator will assign qualified staff to help implement this management plan. The district forester, wildlife managers, and other specialists should be consulted on specific aspects of the resource management of the plan.
2. The regional park supervisor will supervise and direct the park manager to insure that the management plan is implemented correctly.
3. The regional park supervisor will regularly field inspect all development in the park.
4. The regional park supervisor will submit written reports as necessary to keep the regional administrator and the director informed on the progress of development and any problems encountered.

5. The regional park supervisor will submit information to faciliate plan updates and changes. The regional park supervisor will submit his recommendations for change in writing to the regional administrator and the director. The recommendations should include rationale and an analysis of the impact the requested change will have on the management plan.
6. The regional park supervisor will submit project proposals to the regional administrator and the director for review and approval. The director and staff will review all project proposals verifying compliance with the intent of the plan and its schedule.

The region may implement approved project proposals once detailed specifications have been prepared and funding has been provided.

PARK MANAGER

General

It will be the responsibility of the park manager, under the direct supervision of the regional park supervisor, to coordinate the physical implementation of assigned sections of the management plan. The manager will inform the regional supervisor concerning the progress of the implementation through project proposals and written progress reports.

Specific Requirements

The park manager will:

1. Seek the assistance of the regional park supervisor in the resolution of any major implementation problems
2. Consult the regional park supervisor if there is uncertainity, concern, or opposition to recommended management of a specific item within the plan
3. Assist and give direction to field personnel assigned to the implementation of specific sections of this management plan
4. Maintain records on the development of specific items in this plan to insure continuity and reference for future updating and revision
5. Work with the regional park supervisor in initiating project proposals to be submitted to the director for review and approval
6. Submit to the regional park supervisor information to aid in the updating and revision of the plan

OFFICE OF PLANNING AND RESEARCH

General

The Office of Planning and Research will monitor and evaluate implementation of the management plan and make revisions to the plan as necessary.

Specific Recuirements

The Office of Planning and Research will:

1. Review all BOE requisitions and project proposals to evaluate the proposed actions for consistency with the approved plan. Comments, suggestions, or corrections will be submitted to the director
2. Process all modifications to the approved management plan (see Parks and Recreation section)
3. Provice additional information and justification for specific recommendations within the plan when requested by the division
4. Maintain contact with the public, local officials, legislators, and DNR staff regarding the updating of the plan

PROCEDURES

DEVELOPMENT

The development procedure for the Division of Parks and Recreation can be broken down into two categories: (1) contract, and (2) force account.

Contract

Director initiates project by preparing a program, which complies with the management plan.

Director distributes copies of preliminary program and drawings to the planning section and regional staff for review.

Director requests BOE to prepare detail drawings and specifications in accordance with approved program.

BOE prepares detailed drawings and specifications and submits them to the director.

Director approves drawings and specifications, insuring compliance with management plan objectives and goals, and re-submits them to the BOE.

BOE processes contract documents through the Department of Administration, Division of Procurement for bidding and contract award procedures.

Force Account

Director initiates project by preparing the program, complying with the management plan.

Director distributes copies of preliminary program and drawings to the planning section and regional staff for review.

Director assigns funds to regional administrator.

Regional administrator directs regional park supervisor and necessary staff to implement program.

Regional park supervisor may:

Request that the BOE prepare detailed drawings and specifications for review by the director

Assign the park manager to complete the project with field personnel

Assign park manager, in cooperation with the regional staff, to let bids to local contractors

Supervision over the project will be the responsibility of regional, divisional, or BOE staff, depending on the complexity of the specific project.

Regional park supervisor will certify to the division that the project has been completed as planned.

Director and staff will monitor the progress of the development program.

BOE provides direction to the contractor and establishes site location and field staking.

BOE supervises construction and approves completed work according to contract documents.

Director and staff monitor the progress, funding, and necessary coordination between other state agencies and funding sources.

RESOURCE MANAGEMENT

The resource management program for the Division of Parks and Recreation is also broken down into contract and force account categories.

Contract

Director initiates a project by preparing the program, in compliance with management plan.

Director distributes copies of preliminary program and drawings to the planning section and regional staff for review.

Director approves project and initiates bidding process through the Department of Administration.

Director supervises and monitors the program.

Force Account

Director initiates project by preparing the program, in compliance with the management plan.

Director distributes copies of preliminary program and drawings to the planning section and regional staff for review.

Director assigns funds to regional administrator.

Regional administrator directs regional park supervisor and necessary resource management staff to implement program.

Regional park supervisor and resource staff prepare detailed resource implementation program.

Consultant or contractor, in coordination with divisional and regional staff, completes the project.

Director approves the completed project.

Detailed resource management program is submitted to the director for approval.

Once approved, the regional park supervisor and resource managers may:

Assign the park manager and field personnel to implement program

Prepare contracts to be let to local contractors or consultants to implement program

Regional staff supervises project.

Director and staff monitor the progress of the resource management program.

Regional park supervisor certifies to the division that the project has been completed as planned.

MAINTENANCE AND OPERATIONS

The Division of Parks and Recreation will provide the regional staff with necessary direction to maintain and operate state parks as a statewide system. The director will establish rules and regulations pursuant to the ORA '75 for administering state parks. In addition, training courses and manuals will be prepared by the division on park operations, maintenance, enforcement, signing, and construction standards. If necessary, special operational orders will be prepared by the commissioner for specific problem areas. The following illustrates the general operation and maintenance procedures:

Director in cooperation with the assistant commissioner of operations, will establish policies, guidelines, and statewide procedures for maintenance and operations of all state park facilities.

The regional park supervisors, directed by the regional administrator, will follow policies, guidelines, and statewide procedures, of the Division of Parks and Recreation as well as commissioner's orders.

The regional park supervisor will provide the necessary supervision and direction to the park managers to insure that park maintenance and operation policies, guidelines, and procedures are followed.

It will be the responsibility of the park manager, under the supervision of the regional park supervisor, to maintain and operate all park facilities.

The director and staff will inspect and review operations of state parks on a regular basis to insure that statewide procedures are being implemented and followed correctly.